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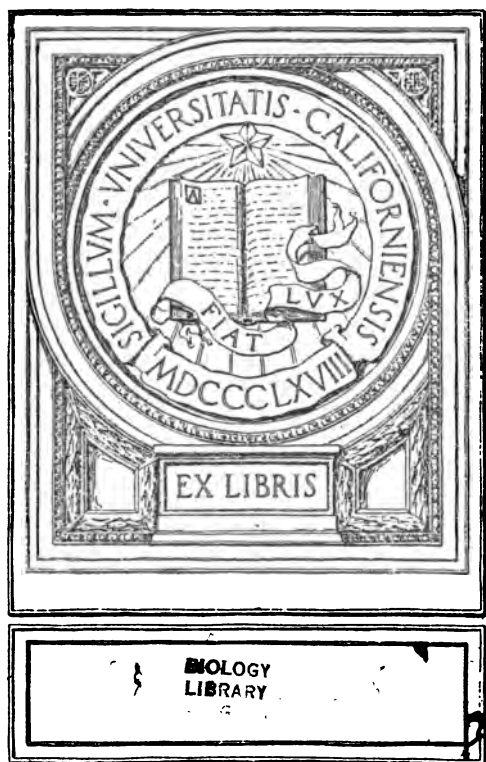
THE CASE-SYSTEM OF HYGIENE

BOOK IV
PERSONAL HYGIENE



NOBLE AND NOBLE
NEW YORK

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THE CASE-SYSTEM OF HYGIENE

BOOK IV

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UNIV. OF
CALIFORNIA

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TO MR. W. H. H. H. H. H.
AND MR. W. H. H. H. H. H.

PREFACE

Your letter of August 22nd stating that you had just purchased several copies of our CASE SYSTEM OF HYGIENE BOOK 4 which appear to be defective, received.

We took over the publishing rights to these books about two years ago and have not revised the copy since then. Dr. Harry W. Haight originally had 7 books in his series, but when he changed these to a three book series he combined the best features in the several books and called them books 1-4 and 7, completely eliminating Books 2-3-5 and 6.

The Book 4 that you have at present is not defective, but if you are not satisfied with the book, we shall be glad to give you credit for its return.

NOBLE AND NOBLE.

PREFACE

(*To teachers.*)

The author presents the following suggestions in regard to the use of this book:

I. It is often advisable to start a lesson by means of a short questionnaire of the last lesson.

II. As a rule a new case should be begun by writing it on the blackboard or reading it aloud a time or two and by assigning it for two or three minutes intensive study, not expecting to secure correct answers, but to promote thought and interest.

III. Written answers to the question following the case mean more intense, individual interest.

IV. The cases need not come in exact rotation. Skipping about a bit secures unstudied cases for starting points.

V. After the presentation of the case a verbal discussion should occur.

VI. When using the case-method instruction may be given in nine *different* ways: (1) by using the cases as motivating and thought-producing devices, (2) by verbal discussion, (3) by reading, (4) by summary, (5) by notes, (6) by causing the pupils to think twice (see below), (7) by review questionnaire as suggested, (8) by test, and (9) by examination,—as time and circumstances permit.

The differing phases prevent monotony and secure thoroughness.

VII. The entire conception of the case-system differs from the conception of the didactic products, in content quite as much as in method. A sincere effort has been made to combat harmful, absurd, and cynical prejudices, such as the ones that nothing

should be taught about disease or symptoms and that pleasing sentimentalities must be presented rather than the concrete, every-day realities and existing conditions with which one must deal to secure action. Instead we have striven to produce a work which would, "move hands and feet rather than tickle the ear."

VIII. A good way to measure the value of the book is to check it over page by page noting the number of places it functions in experience where no book of didactic conception does function.

IX. Too much emphasis can not be placed on the practice of thinking twice. Each child should be lead by proper encouragement and instruction to think over each case for himself outside of class; that is, to recall what the case was about; to recall the system of the summary which is the same in each lesson; and to piece the lesson together, as much as he can on that basis, using pencil and paper in proper grades, before consulting the book. Finally the pupil should be prepared to ask questions at the next lesson, if there are any gaps in his knowledge. Every pupil should realize the importance of making an effort to think for himself without consulting print when he thinks the second time. He should know that what he thinks up and thinks out for himself on the first review represents mastery and clear gain. Whereas, if he is weak and lazy and never thinks twice or only reads in review, he loses part of what he already has and must repeat and repeat before mastering the lesson. The process of thinking twice is facilitated by the process of thinking once, when the case is first presented. Having thought once, the pupil finds it easier to think twice than he would with the old didactic method which is too often demoralizing to the mind and to the will.

Library of California



A Great Man
Of whom is this a picture?

THE CASE-SYSTEM OF HYGIENE

BOOK IV

INTRODUCTORY CASE

The picture is that of William Harvey who lived in England about three hundred years ago.

Why was Harvey a great man?

It is usually said that Harvey discovered the circulation of the blood. That is not quite right. Harvey discovered how the blood circulates in the body and why. Other people before him had known that the blood moved about the body.

Why was it important to have this discovery made?

Before Harvey's time doctors knew very little about the way the human body worked. Consequently, they did not know very much about curing people when the body got out of order. Whenever a person gets sick his body is out of order in some way. Not only did they not know how to put the body in order when it once got out of order but they did not know how to keep it from getting out of order.

Why had no one discovered how the blood circulates in the body before the time of Harvey?

Previous to Harvey's time no one had examined the apparatus for the circulation of the blood in the body carefully or noted how the apparatus works in animals. Before the

time of Harvey some one would notice that there were heart and blood vessels in a pig or beef which was being butchered and that blood dripped out of such an animal. Without ever really looking to see how the heart and blood vessels worked they would say, "Since there is a heart with its set of blood vessels, and, since there is blood, according to all the rules of reasoning, the blood must circulate in such and such a way." The rules of reasoning may have been perfectly good but as a matter of fact the blood did not circulate the way they said it did at all. They just imagined it did. Instead of really investigating with their hands and eyes and ears and noses and really finding out they sat in their armchairs and guessed. When people do that they usually guess wrong.

For what thing must the human race be especially grateful to Harvey?

Harvey taught people that the way to learn any truth was by actual experiment. For instance, he said the way to learn about the circulation was first of all to make a careful dissection of the heart and blood vessels in a dead body. He said there was no reason why a dead body should not be used for that purpose. A person is not his body. The body is merely the shell in which the person lives while he is on earth. Whatever becomes of that person after he dies it is sure he does not remain in the body because the body crumbles to dust in a short time whether it is buried in the ground or burned. Harvey learned by actual trial and experiment. Where the other people had guessed wrong he found out the truth.

Why is it important that he did this?

After that a great many other doctors started dissecting bodies and experimenting on animals also. Of course doctors

give medicine to such animals so that they will not feel pain. No one should ever hurt an animal. Before his time the doctors thought it was enough to guess what was going on in the body without making actual experiments. Harvey showed them that they could not really learn anything in that way but that actual experiment was absolutely necessary.

Has Harvey's work resulted in any great benefit to the human race? (We mean by the human race, all of the people everywhere.)

Since the time of Harvey a great many new discoveries have been made by using the method of actual experiment. None of the wonderful things that are now being done in surgery could be done without his work having been done first. A great many cures for diseases have been found by using the same method. Best of all, discoveries have been made which enable us to prevent a great many of the diseases that formerly carried off hundreds of thousands of people every year.

Harvey was a great scientist.

Can any boy or girl become a scientist?

There is very little doubt that every boy and girl can accomplish at least one great original piece of work, such as Harvey did. The only thing is to get it out. You can do that by having the courage to go ahead and work and look into the nature of things at first hand without taking anybody's say so about them just as Harvey did. Every boy and girl can do a great piece of work during his life, if he tries hard enough and uses the method of actual trial and experiment. The main thing needed is the courage to have ideas of your own and find out whether they are right or not. It took courage

for Harvey to break away from the ideas the other doctors had and the ways they had of doing things. Most of us want the approval of other people too much. We are so afraid of appearing ridiculous in other people's eyes that we are cowardly. You must acquire the courage to stand alone.

CASE NO. I

Jacob E., aged seven years, was an unusually healthy boy. His actions were strong and vigorous. He walked with his body held well erect and his color was fresh and pink, a ruddy glow of health. He had not always been this way. A year before it was known that he had had an offensive breath for over a year. He could not tell it himself, but every one else could. For about a year he had had a stomachache every week or two, and his food usually distressed him after meals. He belched up gas frequently. His face was marred by a dirty set of teeth. On the night of January 2d, he awoke with a severe pain in his left cheek. The pain was so severe that he called for his mother.

What do you think is the matter with the boy?

DISCUSSION—CASE NO. I

He was suffering with toothache. The mother found a cavity in one of his second set of teeth. The tooth throbbed and pained when touched. He said the pain was worse in the tooth, but could be felt all over the face. Toothache can usually be stopped by plugging the aching tooth with some cotton that has oil of cloves or epsom salts on it. His was stopped by putting some epsom salts on a bit of cotton and stuffing it into the cavity.

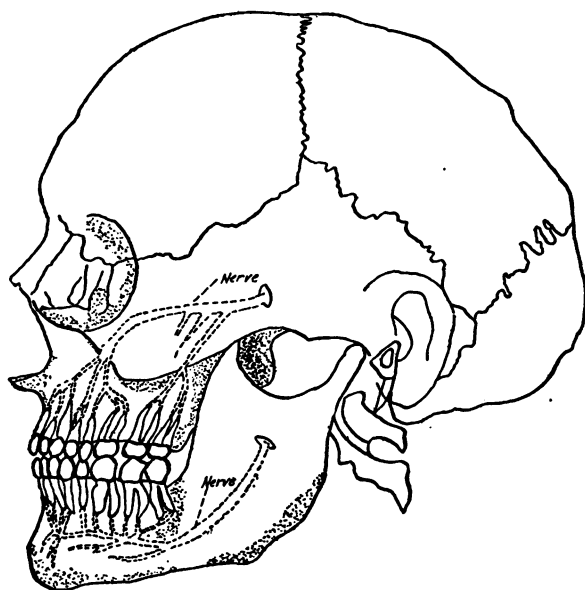
He very promptly consulted a dentist about the aching tooth. If a tooth aches, it is a signal from nature that the tooth needs fixing right away. This tooth was filled and saved. A second tooth ought never to be pulled.

The question as to why a good, permanent, second tooth that he had had only a year should be decayed, naturally arises. He had neglected his first set of teeth and allowed them to become a lot of bacteria nests. The new tooth grew right in among these nests. Of course, bacteria got from the old nests to the new tooth. Bacteria cause teeth to decay.

Every morning, when one awakes, the crop of bacteria that has grown in the mouth over night are numbered by millions. The only way to keep the crop down is to wash it out with a toothbrush every morning, and at night wash out the crop that accumulates during the day. The teeth should be brushed up and down to get the bacteria from the cracks between the teeth. Brushing the teeth crosswise does not touch those places. If you do not do that, your mouth will contain so many bacteria that there is no counting them.

These bacteria destroy the teeth. In cases yet to come, we will see that they do even worse things.

The question of why the tooth ached naturally arises. It ached because, as you may see in the illustration, the bacteria had eaten into the tooth, formed a cavity and gone on through it down to the nerve. Any nerve when attacked gives one a sense of pain. It is a very poor plan to allow a tooth to become so bad. To save it, the dentist has to take out all of



The nerves from the teeth run to the brain

the blackened places where the bacteria have been, including the nerve. If he leaves any bacteria behind and puts a filling in, the bacteria will go right on attacking the tooth. Having a nerve killed and removed gives one a great deal of pain. If a tooth gets decayed too much, it cannot be saved.

Often a person cannot tell when bacteria are beginning to attack the teeth and have formed small cavities that the

dentist ought to fill before they get large. The only way to keep from getting bad cavities is to visit the dentist regularly once a year and have him examine the teeth.

The boy's offensive breath was due to his neglect of his teeth. A person who does not clean his teeth is like a little boy who does not blow his nose, but swallows the secretion instead. Both take millions of bacteria into their stomachs and intestines. The stomach and intestines digest the food. When the bacteria interfere with them, they do not digest properly and indigestion follows. This disappeared in his case when he had his teeth fixed up and started brushing them.

The teeth were spoiling the boy's looks. It is a well-known fact that good looks are worth money to a person. Appearance does count. Most positions in business cannot be held by people who neglect their looks. Appearance makes a great deal of difference to a girl.

SUMMARY OF PRACTICAL POINTS

I. Diagnosis.

1. Toothache.
2. Decayed teeth.
3. Indigestion.

II. Symptoms.

Toothache—pain.
Decayed teeth—

1. Cavity.
2. Bad breath.

Indigestion—

1. Stomachache.
2. Distress.
3. Belching up gas.

III. Cause.

Pain—germs attacking nerve.

Cavity and bad breath—germs attacking teeth.

Stomachache, distress, and belching of gas—germs attacking stomach.

IV. Treatment.

1. Epsom salts or oil of cloves.

2. Dentist.

**V. Preventive treatment
and Prevention.**

1. Care of teeth.

2. Seeing dentist regularly.

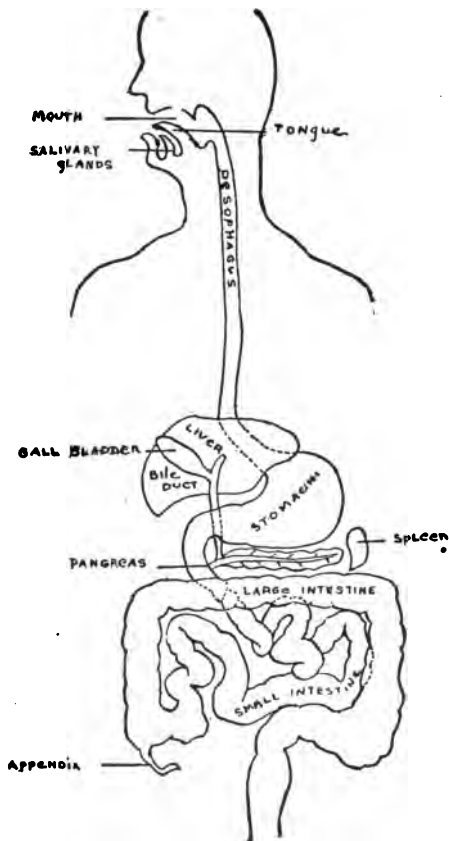
CASE NO. 2

George B., aged fifteen, was a perfectly healthy, happy American boy. At the age of fourteen, he had not been that way. At that time he was in the habit of swallowing his meals very rapidly. He seldom took over ten minutes to a meal. In his family they were always silent at meals and they ate rather rapidly. They did not joke and laugh and have a good time at their meals. For the past six months George B. had felt sick at his stomach frequently; was often distressed by his food; and sometimes could not keep it down. His appetite was poor. He had a crop of pimples on his face and looked to be in poor condition.

What do you think was the matter with this boy?

DISCUSSION—CASE NO. 2

George B. had indigestion as shown by the stomachaches, distress after eating, and vomiting things that come from the digestive organs, the stomach and intestines. The reason he had indigestion was because he ate too fast and did not



The organs of digestion.

enjoy his meals enough. When the writer asked his class of boys and girls about this, they said you ought to eat slowly, but that it was not a good thing to have a lot of fun with your meals and have music and funny stories and things that make you enjoy yourself while eating. The last idea is wrong. Fun, jokes and music get you into an enjoyable frame of mind. There is no doubt that an enjoyable frame of mind does help digestion. We mean by digestion the process that the food goes through in the stomach and intestines. In the stomach and intestines digestive juices are poured out over the food and dissolve the food about as it is dissolved in soup. Before the body can absorb food it must be digested.

To see whether an enjoyable frame of mind aids digestion, Dr. Cannon took a cat and made a little window in the stomach so that he could see into it. First, the cat was petted and made happy. When it was shown food the digestive juices started flowing into the stomach even before the cat tasted the food. Then the cat was brought face to face with a dog and became mad and bristling. Now when it was shown food, no digestive juices were poured out at all.

Therefore, the restaurant keeper who has music and tries to make his guests enjoy themselves while eating is wise and the people who are glum and silent or argue and quarrel at their meals are foolish.

If you enjoy your meals, you will eat more slowly. There are three good reasons why the food should be chewed thoroughly. The first is so that it may be thoroughly mixed with saliva, which helps to digest food.

The second reason for chewing the food well is so that it may be exposed to the digestive juices in the stomach. If the food goes to the stomach in large chunks, the digestive juices cannot get at it as well as if it is finely divided.

The third reason is because it gives the stomach a better chance to form the food into little balls. The digestion of the food is not finished in the stomach. As the stomach works, little waves run from its upper end to its lower end. These waves fashion the partly digested food into small balls and carry it on to the intestines where the digestion is finished and almost all of the absorption takes place.

If this boy had kept on, he would have weakened his powers of digestion and absorption so that they would never be very good. The meals were made enjoyable and the boy formed the habit of chewing his food thoroughly. In a month he had stopped having attacks of indigestion. In a year he looked like a new boy. He was strong and pink and bright and smiling.

SUMMARY OF PRACTICAL POINTS

I. Diagnosis.	Indigestion.
II. Symptoms.	Stomachache, distress, vomiting.
III. Cause.	Digestive organs out of order— 1. Rapid eating. 2. Not enjoying meals.
IV. Treatment.	1. Enjoying meals. 2. Chewing food thoroughly.
V. Preventive treatment.	
VI. Prevention.	

CASE NO. 3

People who are wise do not let such mishaps as this happen to them.

Charles G., aged six years, had a swelling over the angle of his jaw. It was red and tender. It came eight days before at the same time a tooth just underneath started to ache.

What do you think was the matter with this boy?

DISCUSSION—CASE NO. 3

The case of Charles G., who had a swelling of the jaw bone and an aching tooth, teaches us several lessons. The swelling at the angle of the jaw which came on a little while after the tooth began to ache was an abscess or collection of pus. The boy had to go to a hospital, take ether, have a cut made into the abscess and have the pus removed. The cut ran pus from the jaw bone for three months. The cause of all the trouble was neglecting the teeth. He had never brushed his teeth.

The result was that his teeth were overwhelmed with bacteria. The bacteria made cavities and a particularly active lot went right through the root of the aching tooth down into the jaw bone where they set up an inflammation of the bone. As we noted above, the inflamed bone discharged pus for three months.

It was a great mistake to let the swelling go so many days before seeing a dentist or a doctor. If the abscess had been opened as soon as it formed, the bone would not have been inflamed so badly as to discharge pus for three months. Instead of attacking the jaw bone, the germs would have drained out of the cut. He was lucky to get off so easily. Oftentimes, if an inflamed jaw bone is neglected, it will discharge for years and there will be a hideous bony deformity when it finally heals. We have seen before that for the sake of saving a tooth it is good policy to consult a dentist as soon as it begins to ache. This case shows that it may mean saving a serious surgical operation and deformity as well. What boy or girl wants to go through life with a deformed face?

He did have his teeth fixed up by a dentist and did commence to use a toothbrush.

This boy had an ingrowing chin from his neglected first set of teeth. It became better when the teeth were put into good condition and he felt and looked better than he did before.

If keeping your teeth clean did not keep you out of all sorts of trouble, the difference in the way your mouth feels and the way you feel all over is enough to make it worth while.

When men are being examined to see whether they are fit to be soldiers, the army surgeons always look at the teeth. If a man has poor teeth, they know he has not been able to eat properly and cannot be strong. So, they reject all such men.

How can a girl be good looking who has poor teeth? Poor teeth spoil the looks of the face and weaken the rest of the body.

Get a toothbrush and powder and use them twice a day, if you do not do so now.

SUMMARY OF PRACTICAL POINTS

- | | |
|--------------------------|--|
| I. Diagnosis. | Abscess of jaw bone. |
| II. Symptoms. | 1. Swelling.
2. Redness.
3. Pain.
4. Aching tooth. |
| III. Cause. | 1. Germs attacked teeth.
2. Germs worked through a tooth to the jaw bone. |
| IV. Treatment. | Incision of abscess. |
| V. Preventive treatment. | See dentist early. |
| VI. Prevention. | 1. Brushing teeth.
2. Visiting dentist. |

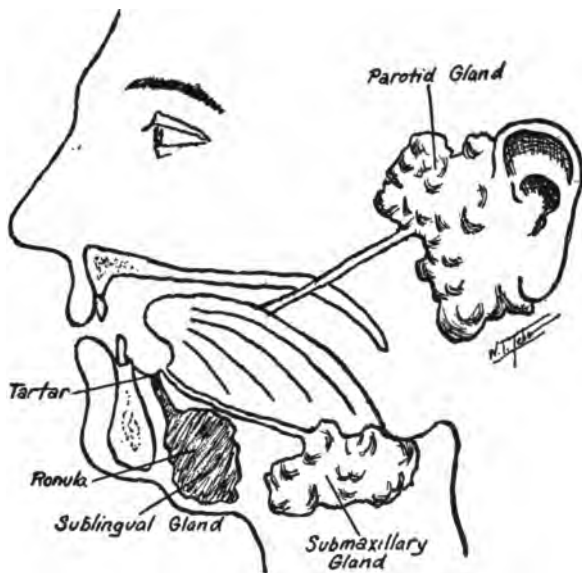
CASE NO. 4

David G., aged twenty-five years, a doctor, had taken good care of his teeth from the time he was ten years old. In spite of all that he could do, tartar kept accumulating on his teeth. One morning he noticed a small, hard swelling just below his chin.

What do you think was the matter with the man?

DISCUSSION—CASE NO. 4

It is a bad thing to let tartar accumulate on your teeth. In his case, some of the tartar stopped up one of the little saliva glands under the tongue and made a little swelling or tumor. This had to be cut out because of the danger of its becoming a cancer. Such a little tumor of a salivary gland is called a ranula.



The salivary glands and a ranula

The dentist noticed pus coming from the gums around several of the teeth. That condition of pus running from the gums is called pyorrhœa (pronounced pie-oh-ree'-ah). Many cases of pyorrhœa or pussy gums are caused by a one-celled parasite called an amœba. These amœbæ eat down around

the teeth and set up a long-drawn-out or chronic inflammation of the gums. At the same time, they attack the teeth and brown tartar or a greenish scum is usually found on the teeth.

Every one who has neglected their teeth the least bit has pyorrhœa to a greater or less extent. Millions of people have it. It can be cured only by having the dentist scrape off the tartar and slime with an instrument (that is the only way it can be removed as brushing will not do it) and by taking emetine, a drug which kills the parasites. Only a doctor or dentist knows how the drug should be given.

This man had the tartar scraped off and took emetine under a doctor's directions. His little bit of pyorrhœa was gone in three weeks.

The way to prevent pyorrhœa is to keep the teeth clean. That can be done by brushing them twice a day and by going to a dentist once a year to have them inspected carefully and put in order.

People who do not do this and let pyorrhœa get a hold on their teeth have very bad teeth and very bad looking teeth. The teeth often get so loose that they drop out. You cannot afford that. You need your good looks and you need your teeth. To be strong and healthy you must have teeth with which to chew food. So, you must clean your teeth regularly and you must visit a dentist regularly.

SUMMARY OF PRACTICAL POINTS

- | | |
|---------------|-------------------------|
| I. Diagnosis. | 1. Ranula. |
| | 2. Pyorrhœa. |
| II. Symptoms. | Ranula— |
| | 1. Swelling. |
| | 2. Tartar. |
| | Pyorrhœa—Pus from gums. |

III. Cause.

Swelling—Tartar plugging salivary gland.

Pus from gums—Amœbæ attacking gums and teeth.

IV. Treatment.

Pyorrhœa—

1. Having dentist clean teeth.

2. Emetine.

Ranula—Excision.

V. Preventive treatment and Prevention.

1. Brushing teeth.

2. Visiting dentist.

3. Occasional dose of emetine.

CASE NO. 5

At the home of Arthur D., a boy in Nebraska, there was great rejoicing. He had just been appointed to the military academy at West Point where boys come from all over the United States to go to school for four years and learn to be army officers at the expense of the government. It is considered a great honor to get that appointment. Every one was telling every one else what fine chances he had in life now. He might become a famous man in history. He was always sure of getting good pay and having a fine position in life.

He traveled from his home to West Point. Here he was examined by several army surgeons. They found his body defective in one particular only. The action of his heart was irregular.

What do you think was the matter with the boy?

DISCUSSION—CASE NO. 5

Arthur D. had been smoking from five to ten cigarettes every day for three years. The nicotine in them had affected his heart, weakened it, and made it beat irregularly.

The heart is such an important organ that the surgeons had to reject him and he had to go back home with all his hopes blasted.

Any one can see how important the heart is by making a little study of it. The heart is a hollow mass of muscle about the size of your fist. It is located a little to the left of the centre of your chest where you can usually feel it beating. If you cannot, running around the room a time or two will make it beat harder and you can.

The heart is fashioned into a pair of pumps. It used to be taught that the heart was a pump. That is not right. It is a pair of pumps, a right pump and a left pump. The right pump is on the right side and the left pump is on the left side. The right pump pumps blood to the lungs and the left pump pumps blood to all other parts of the body.

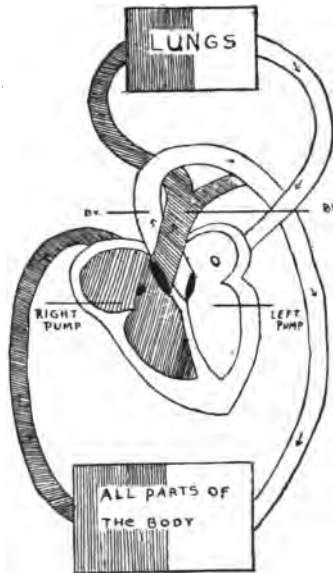
The blood goes to the lungs and the body through arteries which are tubes made especially for this purpose by nature. These tubes have enough muscle in them so that they can contract and relax.

The muscles can contract and relax just as your biceps muscle does in your arm when you feel it and move your forearm up and down.

The way the heart pumps is by going through this process of contracting and relaxing. You will recall that the heart is a hollow mass of muscle. When the heart muscle contracts it gets smaller and makes the hollow inside of it smaller. That squeezes out the blood. When the heart muscle re-

laxes, it gets larger and the blood runs into it and fills it up again.

In a grown person the heart contracts regularly about seventy-two times a minute. With each contraction a wave



The heart is a pair of pumps. The left pump has been colored white. The right pump has been colored black. The right pump receives the impure blood from the body and pumps it to the lungs. The left pump receives purified blood from the lungs and pumps it all over the body, whence it comes back to the *right* pump again.

of blood runs out through the arteries. You can feel these waves of blood by feeling the artery at your wrist. We call this feeling the pulse, because a pulsation strikes your finger as you feel.

Blood is pumped to every part of the body. There is not

a piece of it the size of a pin point that does not have a blood supply. If the heart stops beating, death follows. If any part of the body loses its blood supply, that part dies. If you



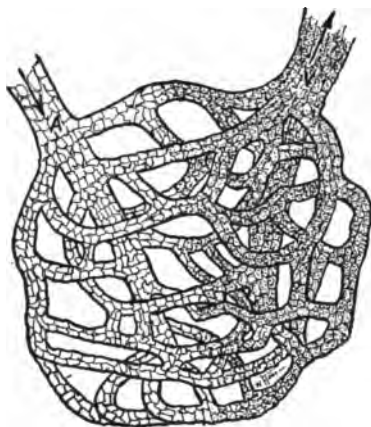
The circulation from the left pump of the heart is in white, the circulation from the right pump of the heart shows up black. You can see from this picture how it is that the left pump pumps blood to all parts of the body and the right pump gets blood from all parts of the body.

tie a rubber band around one of your fingers so tightly that no blood can get to it, the finger will turn black in a few days and slough off.

No part of the body will work well unless it has a good supply of blood. A weak heart means a poor blood supply and a body that does not work as well as it ought to.

Tobacco dulls the brain. That was one reason why the surgeons rejected the boy. The brain is the very important organ in your head. It is the organ of thought.

These old army surgeons had seen so many boys and



These capillaries which have been magnified several thousand times supply a bit of tissue about the size of a pin head. Cells and serum ooze out from the capillaries so that every cell in the bit of tissue has a blood supply. Cells and serum also ooze back into the capillaries so that blood is always coming away from every cell in the body.

men injured by tobacco that they did not want to try to make an officer out of him.

They noticed that tobacco had stunted him a little bit. They knew that tobacco produces bad thoughts and that men who have such thoughts or mental states lose their ability to do things well or lose their efficiency, as we say.

SUMMARY OF PRACTICAL POINTS

- | | |
|--------------------------|--|
| I. Diagnosis. | Tobacco heart. |
| II. Symptoms. | Irregular pulse. |
| III. Cause. | Nicotine affecting heart. |
| IV. Treatment. | } Avoid tobacco. |
| V. Preventive treatment. | |
| VI. Prevention. | |
| VII. General lesson. | Nicotine dulls the brain, stunts
the growth, lessens strength,
and lessens efficiency. |

CASE NO. 6

Frances K. fell off a step ladder while picking cherries and landed on a picket fence. One of the pickets was jammed into her left armpit. Immediately her dress began to get red on the left side and blood began to drip.

What would you do?

DISCUSSION—CASE NO. 6

When Frances K. fell off the step ladder and received a wound in the armpit which bled profusely, her mother tried to stop the bleeding by pressing up into the armpit with her hand. She pressed hard and partly stopped the bleeding.

Meanwhile, some one else had telephoned for a doctor. When the doctor came, he grasped the middle third of the girl's collar bone with his thumb below and the fingers above it. Then he pushed down with his fingers against the first rib. All of the bleeding stopped. With his other hand, the doctor helped the girl's mother take off the waist. Then with his free hand he put artery forceps on the bleeding vessels and clamped them shut. Frances was then taken to the hospital where the wound was cleaned up; the blood vessels tied off with catgut thread, which would absorb later; the clamps removed; and the wound sewed up.

The doctor said that he had no doubt the mother had saved the girl's life by applying pressure to the bleeding place. In any case of severe bleeding, that is the right thing to do. Get the bleeding point between your hand and a bone and push hard against the bone. That will compress the blood vessel, which has been cut open and is bleeding, between your hand and the bone and will shut it off.

Every one should practise shutting off the blood supply to the arm, in the way the doctor did, on some one else. You can do it on yourself but you cannot tell whether it is shut off. On another person you can do it and feel his pulse at the wrist at the same time. When it disappears, you know that you have shut off the vessels that bring blood to the arm. The illustration shows how this is done.

Of course, in case of a small cut the blood will clot itself because small vessels only have been cut. It is best not to put your hand on a small cut because you may get germs or dirt from your hand into the wound. In case of a larger wound where large vessels have been cut and the person is apt to bleed to death, you may have to do that. If you have



You can control bleeding in the arm or armpit in this way. By pushing the blood vessels against the first rib you close them so that no blood can get to the arm. In cases of wounds of the arm more than one life has been saved this way.

time, put some clean cloth under your hand, but do not wait more than a few seconds.

In three weeks the wound had healed up leaving a scar and the girl was all right.

Most accidents are caused by a poor state of mind. People who train their mind to pay attention to what is going on around them seldom get into accidents of this kind. Some people keep their minds wide awake, and attentive, and think what they are doing all of the time. They keep out of

accidents. Others let their minds become inattentive and do not pay attention to what is going on around them, and do not keep thinking about what they should do. This girl did not keep thinking that she was getting off the ladder and over the fence. In other words, she did not notice what was going on around her. If she had, she would not have had the fall. Form this habit of watching things around you. "Heads up" and "watch your step" may be slang but they are also wisdom.

SUMMARY OF PRACTICAL POINTS

- | | |
|----------------|--|
| I. Diagnosis. | Bleeding. |
| II. Symptoms. | Flow of blood. |
| III. Cause | Poor state of mind. |
| IV. Treatment. | 1. Apply pressure with hand.
2. Apply pressure to first rib.
3. Call doctor. |
| V. Prevention. | Wide-awake state of mind. |

CASE NO. 7

Michael P., aged thirty-two, a motorman, had been working at his occupation about six months when he noticed that the veins in his legs were getting large. In six months more they were very large and there were more of them. At the end of two years he had masses of large, hard, knotted veins on both legs and up the inside of the thigh. The pain in the veins often kept him awake at night. While driving a car through heavy traffic down-town, he felt a sharp pain in the calf of his right leg and soon his right foot felt wet.

What do you think is the matter with the man?

DISCUSSION—CASE NO. 7

Michael P. had varicose veins. The pain in his right leg was due to the bursting of one of the varicose veins. His foot felt wet because it was saturated with blood.

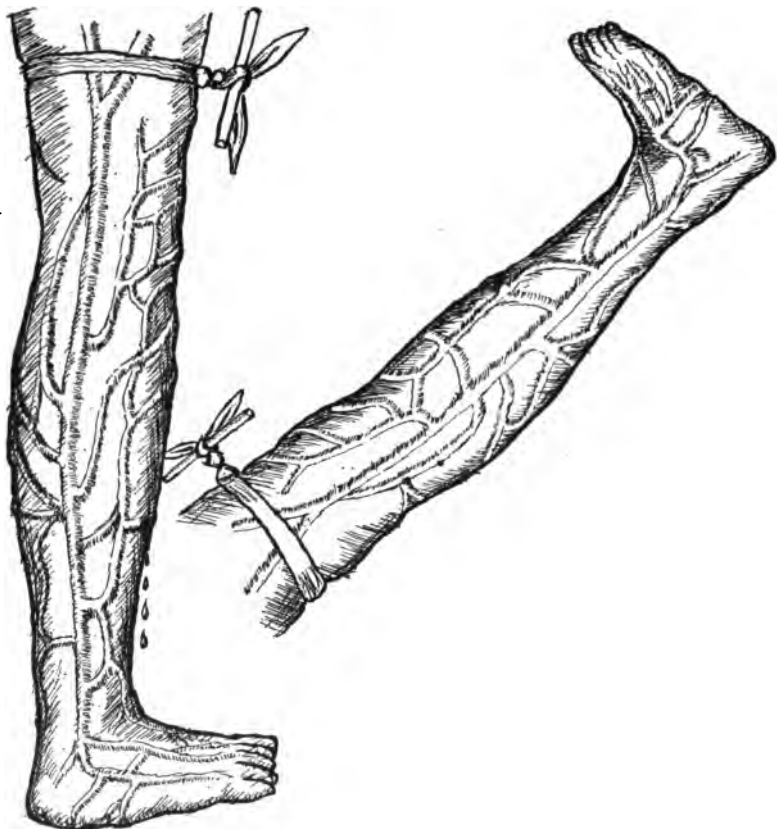
The thing to do in a case of this kind is to push on the bleeding spot with your hand and then put a tourniquet around the leg between the bleeding spot and the body.

A policeman who was on the car put on a tourniquet. The vein bled worse than ever. It bled worse because the tourniquet was not tight enough. It shut off the veins but did not shut off the arteries to the leg. You will recall that arteries bring blood from heart to leg. Veins take blood from leg to heart. Since the arteries were open blood came into the leg, but since the veins were closed none got out except through the place where the vein had burst.

The policeman tightened the tourniquet by putting it on the correct way. He took it off, tied two silver dollars in the handkerchief, placed them just above the bleeding point, tied the tourniquet tight and twisted it still tighter with his club, all of which you can see in the picture. Anything solid that would press down into the flesh and shut off the blood vessels may be used in place of the coins. The bleeding stopped as soon as the tourniquet was tightened.

Afterward the man was pale and weak, and thirsty from loss of blood. This could have been prevented. If he himself had clapped his hand on the bleeding spot and pressed good and hard, he could have stopped most of the bleeding while the tourniquet was being put on.

Since it was a medium-sized vein, having him sit down and put his leg higher than the heart, would have helped to empty



Varicose veins

the blood out of the veins of the leg and would have stopped the bleeding. Oftentimes the bleeding will be so slight that the blood just clots and neither a tourniquet nor pressure by the hand is needed.

Dr. Richardson, a famous Boston surgeon, when lecturing to his students was telling about one of his first operations. In cutting through the scalp he cut an artery. The artery

spurted a stream of blood. "I didn't know just what to do," said Dr. Richardson. "So I put my finger on the artery and pushed while I was making up my mind. In a minute or two when I had my mind made up, I took my finger off. The bleeding had stopped."

Dr. Richardson's teaching is certainly a very good one. Whenever you see a place that is bleeding badly clap your hand on it and push hard. That will stop part of the bleeding anyhow and then you can put on a tourniquet or push against the first rib, or raise the leg as the occasion demands.

SUMMARY OF PRACTICAL POINTS

- | | |
|----------------|------------------------------|
| I. Diagnosis. | Bleeding from varicose vein. |
| II. Symptoms. | 1. Bleeding. |
| III. Cause. | 1. Brittle vein burst. |
| | 2. Stagnation of fluids. |
| IV. Treatment. | Applying pressure with hand. |
| | Elevation of bleeding part. |
| | Tourniquet. |
| V. Prevention. | (See next case.) |

CASE NO. 8

After getting the bleeding stopped not all of Michael P's troubles were ended. The question of what to do about the varicose veins arose. They were keeping him awake nights with pain. In addition to that a friend had told him they were often a source of annoyance.

What should be done for the veins?

DISCUSSION—CASE NO. 8

Varicose veins are often a source of annoyance. Such veins fuse together and destroy the circulation to a small patch of skin. Whenever any part of the body loses its circulation it dies. So, the skin dies and sloughs away, leaving an ulcer or running sore. A leg that has these ulcers is called a milk leg. It is almost impossible to get such a sore to stay healed. It is apt to last a life-time.

The only thing to do for the varicose veins, if they are very bad, is to have them cut out at a surgical operation.

Some varicose veins cannot be prevented because no one knows how that particular group are caused. Most varicose veins can be prevented. This man could have prevented his varicose veins, if he had taken some exercise that worked his legs for an hour every day. A motorman stands still all day and uses his arms but does not use his legs. Motormen very frequently get varicose veins. The reason is because the fluids in the body, like fluids anywhere, run down hill. They run down into the feet and legs and stagnate there. Postmen who walk about a great deal seldom get them. When you exercise as in running, dancing, jumping rope, and playing games, the heart beats faster and the fluids in the legs get pumped out better. When you exercise the legs rapidly the muscles massage one another and everything else that is in the leg. That presses out any fluids that are stagnating there.

Other things can be done to prevent varicose veins. Seats can be given to motormen, traffic policemen, clerks and people who are on their feet a great deal. Avoiding round garters and sleeping with the feet higher than the head also prevent blood from stagnating in the legs.*

*Only people with beginning varicose veins should try sleeping in that way.

SUMMARY OF PRACTICAL POINTS

- | | |
|---|---|
| I. Diagnosis. | Varicose veins should be removed. |
| II. Symptoms. | 1. Large, coarse veins. |
| | 2. Ulcers. |
| III. Cause. | Large, coarse veins— |
| | 1. Stagnation of fluids. |
| | a. Lack of exercise. |
| | b. Standing position. |
| | c. Round garters. |
| | Ulcers— |
| | 1. Clotting of veins. |
| | a. Loss of circulation to skin. |
| IV. Treatment. | Removal of veins. |
| V. Preventive treatment and Prevention. | 1. Exercise of legs. |
| | 2. Seats. |
| | 3. Sleeping with feet higher than head. |
| | 4. Avoiding round garters. |

CASE NO. 9

Joseph K., a lad of about eighteen years, helped himself to a banana from Antonio Frollo's fruit stand. When Antonio demanded pay Joseph K. ran across the street and threw a stone at the same time. The stone struck Frollo over the temple and the blood began to pour. Mrs. Frollo pressed on the wound with her hand and a clean handkerchief, that stopped the bleeding.

Michael H., a policeman aged forty-five years, saw all of this from the corner near by. He knew that Joseph K. was quite an athlete and that he was running, going to the gymnasium, or taking part in some sport every day. He himself was so fat and had such a large stomach that he looked more like an alderman than a policeman. So, he knew that his chances of catching the lad were poor. Nevertheless he ran after the miscreant as fast as he could. The pursuit lasted about a quarter of a mile when the youth ran squarely into the arms of another officer. The fat policeman sank as limp as a rag to the sidewalk. His skin was blue all over. He breathed very rapidly. His pulse was beating one hundred and twenty times each minute and was weak and hard to feel at all.

What do you think is the matter with the policeman?

DISCUSSION—CASE NO. 9

The trouble with Michael H., the fat policeman who ran after the athletic boy, was that his heart had given out. The fact that his pulse was so rapid and so weak shows that his heart was beating weakly because a strong heartbeat produces a strong pulse and a weak heartbeat produces a weak pulse. The boy ran faster and farther than the policeman and did not drop or get a weak pulse. Therefore, his heart must have been stronger than the policeman's.

One naturally asks the question: "Why was the boy's heart stronger than the policeman's?"

You will recall that in a previous case we learned that the heart was a mass of muscle. The boy had made his heart-muscle strong by running, sports, and exercise in the gymnasium. You cannot exercise your muscles without exercising your heart. Every one has noticed that his heart beat faster when he ran.

Any one can tell that the policeman has not taken exercise from his fat appearance. Of course, if he has not taken exercise, his unexercised muscles are going to be weak. The heart muscle is weak just as the other muscles are weak. His heart was so weak that it could not pump the blood out of itself. When the doctor came in he found the heart was almost twice its normal size.

All there was to do was to let the man lie quietly until the heart got a rest. He was carried to the station house which was nearby and allowed to lie quietly for an hour. By that time the size of his heart was again normal. It had pumped the blood out of itself. We call this condition of overfilling the heart and stretching it out a dilatation and would say that the policeman had a dilatation of the heart.

Weak hearts are bad things to have. There is not a piece of one's body the size of a pin point that does not have blood circulated to it. If the heart is weak, the circulation is poor all of the time and every part suffers a little bit.

The heart should not only be strong enough to do its work when one is sitting still but in case of sickness the heart has to do extra work just as in running. If the heart is weak, the victim often dies. The way to prevent weak hearts is to take exercise every day and keep it up as you grow older. As people get to be about twenty-five or thirty they begin to stop taking exercise. That is a great mistake, because, then they start to become weak and fat and flabby and lazy-minded. A sharp Yankee doctor once said to a class of medical students: "Young men, watch your belt line. Don't let it get larger. If it does, you are going back."

SUMMARY OF PRACTICAL POINTS

	BOY	POLICEMAN	
I. Diagnosis.	Strong heart.	Weak heart.	
II. Symptoms.	Strong pulse.	Weak pulse.	
	Breathing easily.	Breathless, blue, and faint.	
	Athletic.	Fat.	
III. Cause.	Strong pulse— Strong heart.	Weak pulse— Weak heart.	
	Breathing easily.	Breathless	} Lack of exercise.
	Athletic.	Fat	
IV. Treatment.	None.	Rest.	

V. Preventive treatment
and Prevention.

Regular daily exercise.

VI. General lesson.

Lack of exercise makes a
weak heart and a weak
body.

Exercise makes a strong
heart and a strong body.

CASE NO. 10

Giuseppe K., aged twenty-seven years, was playing with what he had been told was an empty revolver. It went off. The ball entered his chest just to the right of the middle of the sternum and left it just in front of the upper part of the right shoulder blade. He became excited and started to run to a doctor. The blood poured from the wounds and saturated his shirt. After running about a block he fell unconscious. A policeman picked him up and sent him to a hospital in an ambulance.

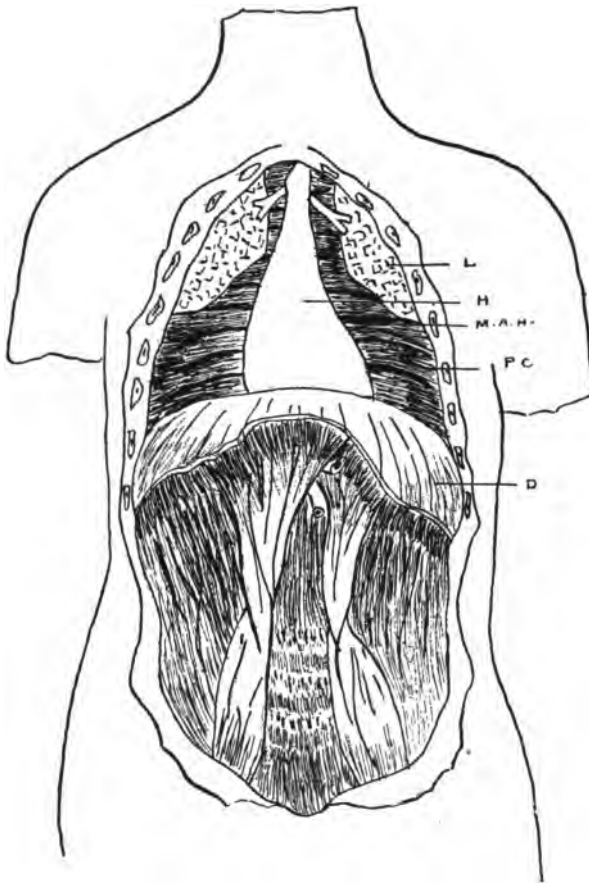
Where do you think the blood was coming from?

DISCUSSION—CASE NO. 10

From the case of Giuseppe K. who shot himself through the right chest we may learn several lessons.

He almost lost his life by getting excited when the accident happened instead of keeping quiet and getting a doctor as soon as possible. In case of an accident where there is bleeding, the victim should be kept quiet and the people present should try to stop the bleeding either by pressing on the bleeding part, or by putting on a tourniquet, if the bleeding place is where a tourniquet or pressure from the hand will stop the bleeding. In this case, the bleeding came from the lung and you could not very well put a tourniquet on it or press on it with your hand.

At the hospital they put him to bed and put some gauze pads over the wounds. The lung stopped bleeding without having any pressure applied to it. That was several years ago when they would not have been able to do anything, if the blood had not clotted in the lung and stopped of itself. Nowadays pressure is often applied to the lung. A hollow needle is thrust between the ribs into the cavity of the chest but not into the lung. (Each lung rests within the chest in a closed cavity called the pleural cavity. The cavity is lined with the pleural membrane or pleura. Most of you have heard of pleurisy which means an inflammation of the pleura.) The pressure in the pleural cavity is increased by connecting the outer end of the needle to a tank of oxygen gas or nitrogen gas and letting some of the gas run into the cavity. As the pressure increases it presses on the lung until it is all squeezed up into a little bunch and the opened blood vessels are squeezed shut. Then the bleeding stops in one lung and the patient goes on breathing with the other.



L—lung (greatly compressed). H—heart. M.A.H—membrane about heart.
P.C—pleural cavity. D—diaphragm

Note how the heart and the membrane around it divide the chest into two closed cavities, and how the diaphragm divides the body cavity into two cavities, the chest and abdomen.

The question of why he bled more freely as soon as he started to run naturally arises. He bled more freely because his heart beat faster. The artery running to the hand can be felt at the wrist. Any one can see that his heart beats faster by counting his pulse before and after running. The pulse is caused by the beating of the heart.

The question of why the man fainted likewise arises. He fainted from loss of blood. He lost so much blood that his brain did not get enough to go on keeping him conscious. Every part of the body has to have a certain amount of blood supplied to it all of the time. If the supply falls below that amount, the part will not work properly.

Every one should know how and where to apply a tourniquet to stop bleeding. If the hand is bleeding around the forearm; if the foot, around the lower leg; if the forearm or arm, any place on the arm above; if the lower leg or thigh, any place on the leg above; always between the heart and bleeding point.

The accident would not have happened, if he had followed the rule of never pointing a gun at any one. Most accidents occur with guns that are supposed to be empty.

He was given anti-tetanus serum. The serum does prevent tetanus or lockjaw. It should be given in any case of a deep wound where the air cannot get at it. The tetanus germ cannot grow in air.

SUMMARY OF PRACTICAL POINTS

- | | |
|---------------|----------------------|
| I. Diagnosis. | Bleeding from lungs. |
| II. Symptoms. | 1. Blood. |
| | 2. Unconsciousness. |

III. Cause.

Blood—

Severed blood vessel.

Unconsciousness—

Loss of blood.

a. Running

Increased circulation of
blood.

IV. Treatment.

1. Quiet.

2. Call doctor.

3. Increase pressure in chest
by use of gas.

V. Preventive treatment. Tetanus serum.

VI. Prevention. Treat all guns as if loaded.

CASE NO. II

Every boy and girl wants to be well and strong. Not one of you must ever get to be like Robert L.

Robert L., aged nine years, was sickly, pale, spindle legged and stooped. His mother said that he had always been delicate and that she had always been compelled to take special care of him. At night his room always had to be warm and the windows carefully closed. In the morning he often had a headache and a bad taste in his mouth. Oftentimes he did not want to go to school because he was weak and tired. He did not work very well after he got there. When it came time to play he could not hold his own with the other boys because he was weak. So, he spent a good share of his play time indoors reading or playing with a doll. He had several colds every winter and had had measles, chicken-pox, mumps, whooping cough, and diphtheria during the past two years.

What do you think is the matter with the boy?

DISCUSSION—CASE NO. II

The trouble with Robert L. was that he did not get enough fresh air and exercise. The mother took him to a doctor and wanted to know if he would grow up to be a weak man. The doctor told her that he certainly would unless she made some radical changes in the way she was taking care of him.

Two marked changes were made in his manner of living. He played out of doors every day just as much as he possibly could, often all day long. He slept with his windows open at night.

The mother was sure that he would catch pneumonia and die, if he slept with his windows open. She had always heard that draughts blowing on you give you colds and pneumonia. She was positive draughts would blow in the open windows and make him sick.

The doctor told her that she did not have the idea quite right. It is true that, if draughts blow on you when you are sweating or have only light clothing on, you are apt to catch a cold because the draft will then carry off a large amount of heat from your body and suddenly weaken it in that way. But, if at the time the draught strikes you, you are dressed or covered so that you keep warm, the body will not be weakened and you will not get sick. On the contrary, the cold, fresh air is very bracing and will make you stronger.

So she decided to try having him sleep with his windows open and made sure that there were plenty of clothes on the bed before he got into it so that he would not get cold during the night.

After six months of regular exercise and sleeping with open windows, a change could be noticed. His color was

better, he was more vigorous and instead of having had three or four bad colds, he had had only one that lasted just five days.

The effect of oxygen on this boy was just the same as it is on every one else. When he exercised and slept with his windows open, he got plenty of oxygen and was strong. When he failed to do so, he did not get enough oxygen and was weak.

The reason he was strong was because the oxygen affected every cell in his body. As you know, the body is a vast collection of cells. Every part of it from the head to the foot is made up of tiny cells. When he exercised, he breathed in a great deal of oxygen. This was absorbed into the blood in the lungs. While he was exercising, his heart was beating strongly and pumped the blood with good strong beats to every cell in the body. We shall learn in a later lesson just how the oxygen made every cell stronger. See how different this was when he did not exercise. He did not breathe in as much oxygen and his heart did not pump it around as vigorously. Then every cell was weaker.

His color was better because the oxygen made his blood redder. So, instead of being pale and pasty, he was fresh and rosy when the red blood showed through his skin.

You must never let yourself get pale and weak from lack of exercise and oxygen. If you do, you will not grow as you ought to. Sleep with your windows open or upon a sleeping porch and play out of doors as much as you can. That will keep you well and make you strong.

SUMMARY OF PRACTICAL POINTS

- | | |
|---------------|---|
| I. Diagnosis. | General weakness. |
| II. Symptoms. | Sickly, pale, spindle legged,
stooped. Prey for disease. |

III. Cause.

Way of living.

1. Lack of exercise.
2. Lack of oxygen.

IV. Treatment.

1. Exercise.
2. Oxygen.
 - a. At play.
 - b. At night.

V. Preventive treatment
and Prevention.

1. Regular daily exercise with other boys.
2. Sleeping out of doors or sleeping with open windows.

CASE NO. 12

Mr. E. G., aged twenty-four years, worked in a chemical laboratory. Whenever he went into the laboratory he noticed several different kinds of smells. Oftentimes when he breathed he noticed a sharp burning smell. Sometimes as he smelled his eyes watered. When the smell was very sharp he sneezed and sometimes coughed. After working in the laboratory three months he noticed that his throat was a little bit sore and that he coughed a little every day.

What do you think is the matter with the man?

DISCUSSION—CASE NO. 12

Mr. E. G., a young man who was working in a chemical laboratory, had an irritation of his nose and throat from the gases and fumes given off by the chemicals in the laboratory.

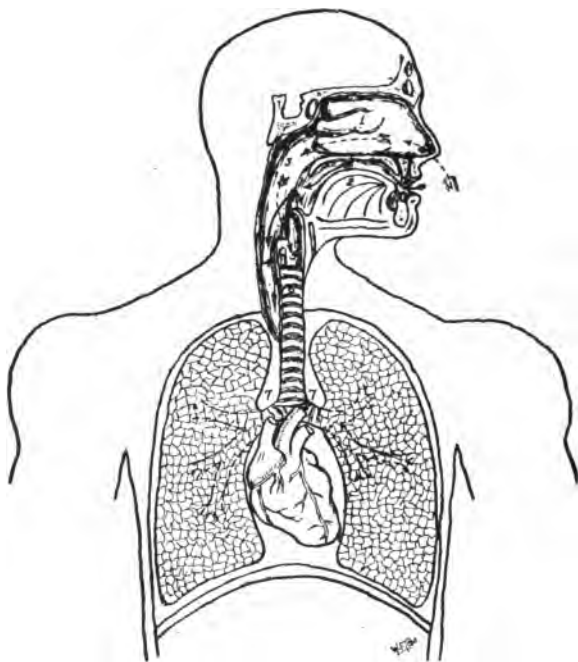
He should have seen to it that the air where he worked smelled nice and fresh. Any air that has all sorts of smells in it is injurious. If he could not get air into the place, he should have kept away from it until his nose and throat were well. If he kept on working, the gases were sure to irritate his nose and throat and to irritate the air passages going from the throat to the lungs, the trachea, larynx and bronchi, and perhaps the lungs themselves. Note the picture of these parts. He kept right on working. The throat kept getting more and more sore. The nose ran more and was all stopped up. His eyes watered frequently and the skin of his face burned, showing that the gases were even irritating the skin which is less delicate than the mucus membrane lining the cheeks, throat, and air passages.

At the end of another month, he went to see a doctor because he had almost lost his voice and had a pain in his left chest in addition to a very sore throat, nose, eyes, and face.

He had lost his voice because the gases had irritated the larynx which is the organ that makes sounds. You may see the larynx in the picture.

The pain in his chest was because either the bronchus or lung down there was irritated.

When the doctor looked into his mouth, he saw that the tongue, tonsils, and palate were very much swollen, red and painful, the turbinates in the nose also. You may see what the turbinates are like from the picture, also the palate. In



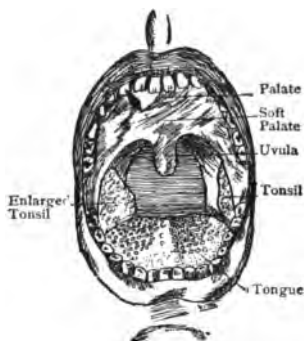
1. Nose 2. Mouth 3. Pharynx 4. Œsophagus 5. Larynx
6. Trachea 7-7. Bronchi

From this section of the head and chest you can see how it is that air may reach the lungs from either the nose or mouth. Note the place where the trachea opens off the œsophagus. The food goes down the œsophagus and the air goes down the trachea.

other words, they were inflamed. Four Latin words represent the signs of inflammation, tumor, dolor, rubor and calor. Tumor means swelling; dolor, pain; rubor, redness; calor, heat. His throat showed tumor, dolor and rubor.

When the doctor put a thermometer into his mouth it showed calor also. Instead of being normal at 98.6 degrees, it was 101 degrees.

Usually, when a person has a fever it is because germs are attacking him. So, he was probably being attacked by germs.



The throat as you see it when you look in through the mouth.

The tonsils are the same size when normal.

There are always millions of germs living in the nose and throat. Usually the tissues of the nose and throat keep these germs from doing any harm. But now these tissues had been weakened by the gases. So, the germs had risen up and were attacking the tissues of the air passages.

When germs attack tissues we call this process of attack by the germs an infection. When you say you have a cold in the head, it is really an infection of the nose. When you say you have a sore throat it is really an infection of the throat.

Colds and sore throat are caused in just that way. For

some reason the tissues get weak. Then the germs go at them. Things like dust, gases, fumes and foul air irritate and weaken the tissues. If you let yourself get weak all over by taking poor care of yourself, the tissues will also get weak. Then you will have infections by germs.

He was in bed for about a month. The reason he was kept in bed was because the body fights off germs better when it is given a chance to do that alone and is not used to do a person's regular work in addition.

At the end of three months he seemed perfectly well but when the doctor examined his nose and throat, the tonsils were a little larger than before and the turbinates were larger. The parts inside of the throat and the nose get enlarged by irritations and infections such as he had just passed through.

You must avoid breathing dust, fumes, and foul air. If you do get a cold you must not make it worse by keeping up the thing that caused the cold.

Avoid dust around your house. Dust with a wet cloth. Do not use a feather duster. A feather duster stirs up dust and does not get rid of it. A broom also raises dust. The windows must be open at sweeping time to let the dust out. It is much better to use a vacuum cleaner. When it is dusty around your house, sprinkle with a hose. The streets ought always to be sprinkled and oiled when it is dusty. Scattering calcium chloride about also keeps down dust.

SUMMARY OF PRACTICAL POINTS

- | | |
|---------------|---|
| I. Diagnosis. | Irritation and inflammation of
nose, throat, eyes, and skin. |
| II. Symptoms. | 1. Watery eyes. |
| | 2. Sneezing. |

II. Symptoms.—*Contd.*

3. Coughing.
4. Sore throat.
5. Discharge from nose.
6. Loss of voice.
7. Pain in chest.
8. Pain, swelling, redness of tonsils, turbinates, and adenoid.
9. Fever.

III. Cause.

1. Fumes weakened and irritated the air passages.
2. Germs attacked weakened air passages.

IV. Treatment.

1. Rest.
2. Stopping irritants.

V. Preventive treatment.

Treatment sooner.

VI. Prevention.

1. Ventilation.
2. Vacuum-cleaner.
3. Sprinkling yards and streets.

CASE NO. 13

It is a well-known fact that school doctors prevent a great deal of useless sickness and suffering. The following case is a good example of what the school doctor remedies and prevents.

Floyd K., aged eight years, had a cold. His nose was running and his throat was rather sore. He had had the cold for almost a month. For the past three winters he had had colds several times each winter. They lasted about a month. He was getting on finely at school and was well in other respects. His teeth were rather crooked. His face was not shaped very well and his eyes were prominent. He breathed through the mouth. He did not talk very plainly. He had a little hacking cough and kept blowing a discharge from his nose to a handkerchief.

What do you think was the matter with the boy?

DISCUSSION—CASE NO. 13

His mother was told by the school nurse that the school doctor had examined him and said that he needed to see a doctor about his nose and throat. She took the boy to a doctor who called her attention to the misshapen face, prominent eyes, crooked teeth, mouth breathing, poor hearing and cough. She had been so used to being with the boy every



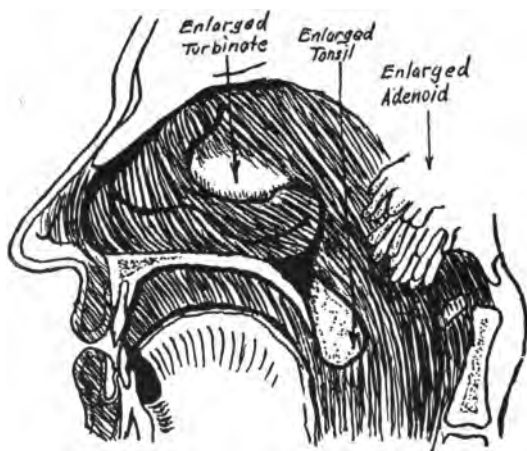
What do you think is the matter
with this child?

From Bacon's Manual of Otology. Courtesy, Lea & Febiger, Publishers

day and he had acquired these things so gradually that she had never noticed the change. She had not thought about his having a long series of colds every winter until the doctor asked her if he had and told her that they usually mean enlargements in the nose and throat. Of course, that shows the value of having school children examined by a doctor

once a year. If you see a person only once a year, you will note any change. If you see him every day, you will not. That is why parents often fail to notice things of this kind. It is a common saying that doctors never know anything about their own children.

Later the doctor looked into the nose and throat with lights and mirrors especially designed for the purpose, and saw the enlargements of the turbinates in the nose and the enlarged tonsils and adenoid.



Enlargements in the nose

The mother wanted to know whether the deformities of the face would be cured, if the enlargements were removed. The doctor had to tell her that they would be partly outgrown but would not be completely outgrown. He said that he thought the hacking cough could be remedied because the tip of the soft palate, which is called the uvula, was enlarged and could be trimmed down. It hung down in the throat, irritated it, and the throat was always trying to cough it up.

A few days later the tonsils, adenoid, and enlargement of turbinates and uvula or soft palate were removed. The boy had a few colds afterward but they did not last long. In a year, he was much stronger and better looking and did not breathe through his mouth. A dentist had straightened his teeth considerably.

This boy ought never to have acquired these deformities. The series of colds was a signal from nature that the nose and throat needed fixing. It should have been heeded by the mother and a doctor should have been consulted when he first began to have long drawn out colds. They cause these enlargements. If the enlargements had been removed when they first came, he never would have had the deformities.

We shall learn about the prevention of colds later.

SUMMARY OF PRACTICAL POINTS

- | | |
|---------------|---|
| I. Diagnosis. | Enlargement of tonsils, turbinates, and adenoid. |
| II. Symptoms. | <ol style="list-style-type: none">1. A persistent cold.2. A series of colds.3. Crooked teeth.4. Misshapen face.5. Poor voice.6. Mouth breathing.7. Hacking cough. |
| III. Cause. | <ol style="list-style-type: none">1. Cold. Series of colds—Germs attacking nose and throat.2. Crooked teeth, misshapen |

- III. Cause—*continued*. face, mouth breathing, and
poor voice—enlarged adenoid.
3. Hacking cough—long uvula.
- IV. Treatment. 1. Removal of enlargements.
2. Straightening teeth.
- V. Prevention. Prevent colds.

CASE NO. 14

It is not natural to have colds. A great many of the colds people have can be prevented. If you keep yourself in perfect health, you will very seldom have a cold. You never ought to get into trouble the way this little girl did.

Mary J., four years old, had had frequent colds for the past three winters. The colds often lasted a month. She breathed through her mouth and snored at night. Little lumps or enlarged glands had appeared in her neck during the past month. She was unusually stupid. She kept her mouth open. Her teeth were rather crooked. Her face was sunken around the nose. She did not talk very plainly.

What do you think was the matter with the girl?

DISCUSSION—CASE NO. 14

Mary J. had mouth breathing, a deformed face, an indistinct voice, and crooked teeth. She had been having repeated colds. All of that points to enlarged tonsils or an enlarged adenoid.

Children should never be allowed to get as bad as she was. She should have been taken to a doctor for the colds and coughing long before. The time to get after tonsils and adenoids is in an early stage when they are causing coughs and colds only, and have not caused deformed face bones and mouth breathing, and spoiled the voice and teeth. An operation can often be avoided at that time.

You can tell when adenoid and tonsils are beginning to get bad by the way the boy or girl has colds and coughs. If any boy or girl has several colds during the winter, tonsils and adenoid should be suspected. If any boy or girl has a cough, either with or without a cold and the cough lasts a month, tonsils and adenoid should be suspected. If any boy or girl has a nose that runs for a month, tonsils and adenoid should be suspected. If any boy or girl has a cold that lasts a month, tonsils and adenoid should be suspected. These four things should cause any child to be taken to the doctor to see whether the child has enlarged tonsils or adenoid.

This girl was taken to a doctor. The enlarged tonsils and adenoid were removed. Afterward, the cold stopped; the deformity of the face improved, she breathed through her nose, talked plainly, and did better in school.

It was a good thing to have the mouth breathing stopped because the air that comes in through the mouth is not strained as well as the air that comes in through the nose.

The membrane that lines the nose has millions of fine hairs or cilia on it. They catch foreign particles like dust and bacteria and move them out to the nostrils. The turbinates in the nose are a device to expose all of the air to the hairs. The mouth does not do anything of the kind but lets the foreign material right down into the lungs. That causes bronchitis and pneumonia. Bronchitis means inflammation of the bronchi. Pneumonia is one sort of inflammation of the lungs.

In her case also, regular habits of eating meals, sleeping, exercising, and bathing were formed. They helped to improve her health.

It used to be said that children with adenoids were dull because the adenoid pressed on the brain. That in all probability is not right. The same things that caused the colds that gave her the enlarged adenoid and tonsils probably caused the backwardness of her mind: These things were lack of exercise; lack of fresh air; irregularity of meals; irregularity of sleep; going into crowded places; failure to take a bath every day; eating between meals; and breathing dust, gases, and smoke.

Removing the tonsils and adenoid often fails to make a dull child any brighter. That is because the causes of the tonsils and adenoid are not removed, too. It is not enough just to cut out the enlargements. The bad habits must go too. If their opposites are formed when a child is young, the enlargements will be prevented.

Form these good habits while you are young. Do not have tonsils and adenoids and bad habits that must be removed.

SUMMARY OF PRACTICAL POINTS

- | | |
|--------------------------|--|
| I. Diagnosis. | Enlarged tonsils and adenoid. |
| II. Symptoms. | <ol style="list-style-type: none"> 1. A series of colds. 2. Enlarged glands. 3. Mouth breathing. 4. Crooked teeth. 5. Deformed face. 6. Poor voice. 7. Stupidity. |
| III. Cause. | <p>Colds and glands—Germs attacking throat.</p> <p>Mouth breathing, crooked teeth, deformed face, poor voice—</p> <p>Interference of enlarged adenoid and tonsils.</p> <p>Stupidity—Bad habits that caused colds.</p> |
| IV. Treatment. | <ol style="list-style-type: none"> 1. Removal of enlargements. 2. Breaking bad habits and forming good ones. |
| V. Preventive treatment. | <p>Suspect enlargement because of</p> <ol style="list-style-type: none"> 1. A persistent cold. 2. A series of colds. 3. A persistent cough. 4. A persistent discharge from the nose. |
| IV. Prevention. | Prevent colds. |

CASE NO. 15

Grace R., aged three years, had had a persistent cough for two months. Some of the neighbors said it was whooping cough but she had never whooped and had never been very sick. The mother regarded it as an ordinary cold. The child looked well. She had an unusually pretty face, clear voice, and was very bright.

What do you think is the matter with the child?

DISCUSSION—CASE NO. 15

The little girl had an enlarged adenoid. In a young child, a cough persisting several weeks is usually due to enlarged tonsils or an enlarged adenoid. As you learned previously, an enlarged adenoid is a growth in the back of the nose. It comes from having many colds in the head.

She had a large adenoid removed and soon stopped coughing. You are no doubt accustomed to think of a child with an enlarged adenoid as one who breathes through the mouth, has a deformed face, a thick voice, and is rather stupid. This little girl had none of those things. That was because she had had the enlarged adenoid only a short time and had not acquired those deformities. She would, if she had been given time.

But why give her time? Then was the very best time to get the adenoid out. Removing it in that early stage prevented the deformity of the face bones, mouth breathing, thick voice and stupidity

SUMMARY OF PRACTICAL POINTS

- | | |
|--------------------------|---|
| I. Diagnosis. | An enlarged adenoid. |
| II. Symptoms. | A persistent cough. |
| III. Cause. | Due to enlarged adenoid. |
| IV. Treatment. | Removal. |
| V. Preventive treatment. | This was preventive treatment.
It prevented deformity of the face. |
| VI. Prevention. | Prevent colds. |

CASE NO. 16

Clarence E., aged twenty-four years, received a cut on the back of his hand near the base of the right thumb. It was a deep gash from a mince-meat cutter in a mince-pie factory. The cuts from this machine were so common in the factory that it occasioned little comment. He had the hand bandaged up by a fellow employee and went home. The cut was deep and bled profusely but stopped in a few minutes. He noticed that he could not bend the thumb away from the little finger and that the thumb had a tendency to hang over, toward the little finger.

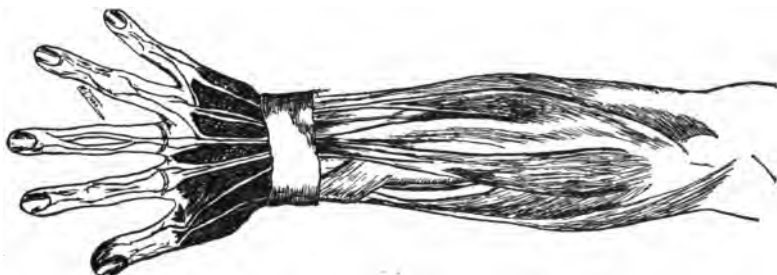
What do you think was wrong with the thumb?



**All of the muscles arise from bone and are
attached to bone.**

DISCUSSION—CASE NO. 16

Clarence E. ought to have been thrown on his guard right away when he saw that he could not move the thumb properly. The reason he could not move his thumb was because a tendon had been cut. The tendons of the thumb are the white glistening cords or bands into which the red fibres of some of the muscles of the hand and arm run. The muscles are attached to the bones of the thumb by the tendons. If you pull your thumb away from your little finger, you can see a tendon stand out under the skin on the back of the thumb.



Some of the muscles and tendons that make the thumb and fingers move.

The thumb follows the movements of the bones in it. The bones are made to move by the contraction of the muscles attached to them. As you pull your thumb toward the little finger you can see the muscles, in the palm at the base of your thumb, contract under the skin. When the muscles contract, they pull on the bones and make them move.

In this case, the connection between the muscle and bone had been cut. So, when the muscle contracted, it did not pull on the bone but just pulled up the end of the tendon and the bone did not move.

He should have gone to a doctor who would have seen that the tendon was cut and would have kept it together by putting in stitches. Then it would have healed together and he would have been able to move the thumb.

As it was, he came to the doctor three weeks later when the wound had all healed up. Then he had to undergo a very difficult operation. He had to take ether. The surgeon had to make the wound all over again; go down and pick out the severed ends of the tendon, sew them together, and stitch up the wound. Then the man had to wait three weeks more for it to heal. He had to run the risk and expense of a surgical operation and lost just twice as much time as if he had gone to a doctor in the first place.

A tendon is not the only important structure that is apt to be injured in a deep cut. There are nerves running everywhere also. They, too, will heal together, if the ends are kept together until they get a chance.

The nerves in the thumb are white cords running from the brain to the muscles. When you will to move your thumb, your brain sends impulses along the nerves just as a telegraph instrument sends impulses along a telegraph wire. The impulses make the muscles contract and move the thumb.

This accident ought never to have happened. There ought not to be dangerous machinery around factories. So many people came to the hospital from this pie factory that the state authorities should have gotten after the owners and made them put in safe machinery. The factories should be inspected by the state authorities two or three times a year to see that the machinery is safe.

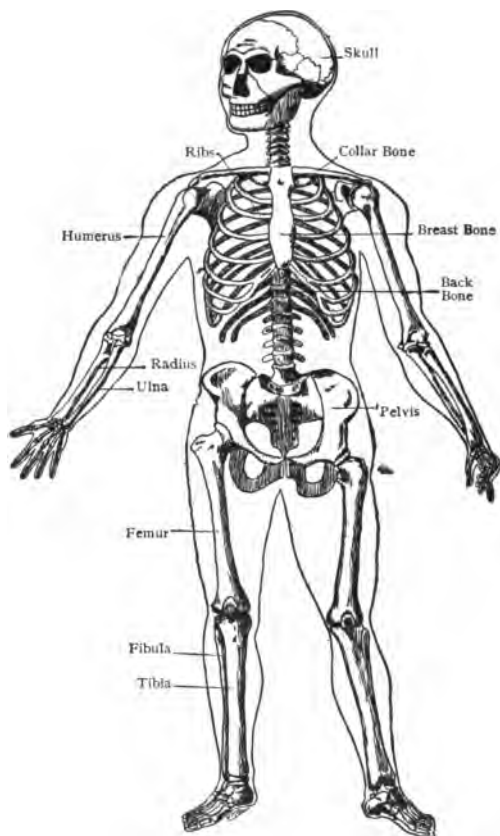
This inspection should not be made because the factory owners are wicked and want to kill off or disable their work-

114 THE CASE-SYSTEM OF HYGIENE

men but because factory owners are human beings and like all human beings need to give account to some one else at frequent intervals. Any one will tend to his factory better, if he knows it is going to be inspected every few months.

SUMMARY OF PRACTICAL POINTS

- | | |
|--------------------------|--|
| I. Diagnosis. | Severed tendon. |
| II. Symptoms. | No movement. |
| III. Cause. | Muscles not attached to bone. |
| IV. Treatment. | 1. Have tendon stitched.
2. Avoid operation, danger,
loss of time and money. |
| V. Preventive treatment. | Proper care of wounds. |
| VI. Prevention. | 1. Safe machinery.
2. Factory inspection. |



The framework of the body.

CASE NO. 17

Mrs. W. C., aged forty years, was crossing a street just at the edge of the business district of Los Angeles. An automobile going forty miles an hour suddenly shot around the corner. It knocked her down and passed over the left leg. Her escort caught on the radiator and escaped injury. The lady was taken to a hospital at once. She was not suffering greatly from her injuries. She could move the leg but it was painful. The right forearm pained and she could not bend it at the elbow. A doctor examined both arm and leg carefully and said that there was no fracture that he could feel.

What would you have done?

DISCUSSION—CASE NO. 17

In the case of Mrs. W. C., who was run over by an automobile, note that the doctor said there was no fracture which he could feel. He advised Mrs. W. C. to have an X-ray picture of the leg and arm taken at once. She refused because the two pictures would cost fifteen dollars. She said that she knew the doctor was very skillful and guessed that he could tell whether there was a broken bone without an X-ray. He told her that oftentimes the broken pieces were jammed into one another in such a way that the break could not be felt.

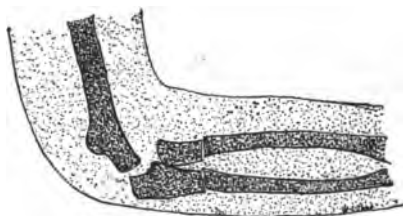


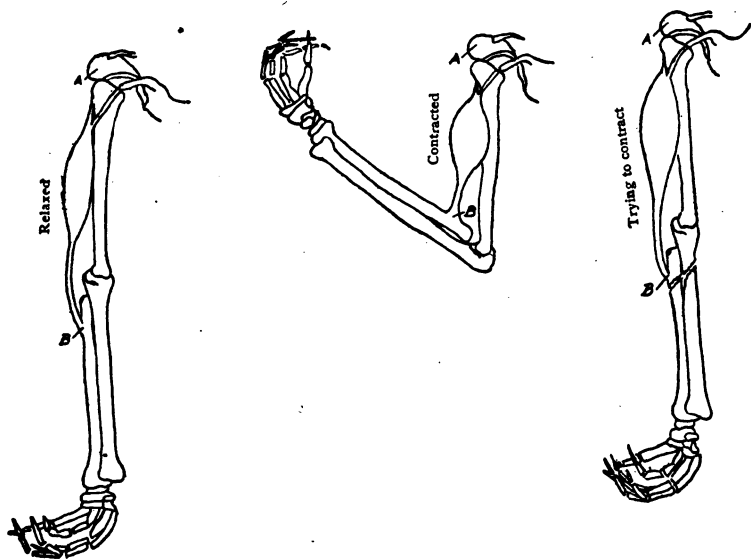
Diagram of an X-ray picture of a fracture of the upper ends of the radius and ulna.

At the end of four days the arm and leg were still sore and she could not move them. Meanwhile the doctor had been arguing for an X-ray every visit he made. On this day she gave in. The X-ray showed a fracture of both bones of the forearm with the broken pieces jammed into one another and one of the femur, the big bone of the thigh, near the hip joint.

She was given ether and the bones in the forearm were properly set and put up in a plaster-of-Paris cast. The two fragments in the leg were in very good position and required no resetting. She was well in two months. Her leg gave

her no trouble in walking. The shape of the arm was not changed except that it was rather flabby and wasted. She could make all the usual movements with the arm perfectly well but the arm was not strong.

The reason that the arm was not strong was because the muscles which felt flabby and wasted were flabby and wasted. They had been shut up in a cast a long time and had not had any exercise. The muscles lie along the bones and are attached to them in such a way that when they contract they make the bones move at the joints between the different bones. A good example of the way muscles are arranged is the biceps muscle. As you move your forearm forcibly toward



When the biceps contracts it pulls the points A and B where the two ends of the biceps are attached nearer together. That causes the movement at the elbow. You can see why no movement occurs when there is a fracture in the right place.

your shoulder, you can feel your biceps contract, if you grasp it with your other hand.

The biceps is attached above to the collar bone and the shoulder-blade and below to the front surface of the two bones of the forearm close to their upper ends. Note that it runs past the elbow joint. When the biceps contracts, it gets shorter and pulls the front surface of the forearm closer to the shoulder. Since the ends of the bones have to move in the elbow joint, the forearm is pulled up and down like a pump handle.

The bones were broken just below the attachment of the biceps. So when it contracted, there was no pull on almost all of the forearm and almost no motion.

The pain kept the upper fragments from moving.

Most automobile accidents occur for the same reason that this one did. The way to prevent speeding is to limit the weight and power of the cars that people are allowed to use.

SUMMARY OF PRACTICAL POINTS

- | | |
|--------------------------|---|
| I. Diagnosis. | Broken bones. |
| II. Symptoms. | 1. Pain in leg.
2. Pain in arm.
3. Inability to move arm. |
| III. Cause. | Speed. |
| IV. Treatment. | 1. X-ray for diagnosis.
2. Setting.
3. X-ray for position of bones. |
| V. Preventive treatment. | X-ray. |
| VI. Prevention. | 1. Less speed.
2. Lighter cars. |

CASE NO. 18

The people we admire are the alert, wide awake, sprightly, skillful people. We like to see people carry themselves erect and pay attention to what is going on about them. You must belong to that group of people. You must not be like Gertrude E.

Gertrude E., aged fifteen years, walked with a shambling gait, and a stoop; was round-shouldered and rather hump-backed; and was rather dull. She did not get along very well in her classes and did not play very much with the other children because she was slow and clumsy at the games they played.

What do you think is the matter with the girl?

DISCUSSION—CASE NO. 18

From the case of Gertrude E., who walked with a stoop and was round-shouldered and hump-backed, we may learn several lessons.

The way the young lady carried her body when she walked was very bad. The reason she carried her body so badly was because she had a crooked backbone. The crooks in that made her hump-backed; threw her shoulders out of position; and made the upper part of the body rest on the legs in such a way that her way of walking was shambling and shiftless.

There were two causes for the crooked backbone. In the first place, she sat at her desk at school in such a way that the backbone got a crook in it. She did not go out at recess and in the afternoon did not take enough exercise to get the crook out. Girls do not exercise as much as boys. That is why more girls than boys have crooked backs. The crook is very small at the end of any one day in school and exercise after school will take it out easily. If you do not exercise and let the crook of one day keep adding on to the crook of another, in a few months there will be such a large crook that exercise will not take it out.

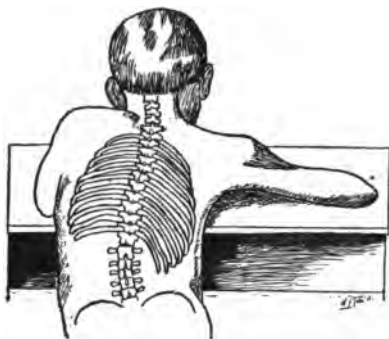
The second cause for the crooked back was because she did not pay attention to herself and walk straight and sit up straight. Her mind was in an inattentive, sleepy state all of the time.

No one wants to be deformed as this girl was. It not only looks bad but affects a person's ability to do his work. When the backbone gets twisted out of shape, the stomach and intestines get displaced and do not work properly. It sometimes happens that the intestines are badly displaced so that

people become invalids and cannot do any work but suffer a great deal.

The way to prevent this deformity is to exercise every day. Exercise not only gets the twist out of the backbone, but prevents a bad mental state.

Her case was a splendid example of the value of having the body examined for defects by a doctor. No one noticed that



Curvature of the spine

she had a crooked backbone until the school doctor in examining all of the children saw it. In some schools, this is done once a year. The number of defects that are found that can be remedied is very large. People cannot tell the defects in their bodies and must have them pointed out by a doctor. Whenever an older person tries to get life insurance, he has to be examined by doctors. At these examinations so many defects are found which are remedied later that doctors who try to prevent diseases claim that there should be laws compelling every one to be examined at least once every year.

In getting a good carriage while walking, the most im-

portant thing to remember is the head. Hold it up and push it up.

Most boys and girls are growing at least up to the time they are twenty-one. Some keep on longer. During this time the body either grows straight or it grows crooked. It is much easier to keep from getting crooks by taking regular exercise than it is to get a crook out after it is in. This girl went to the gymnasium of a hospital several hours a week and slaved away with a lot of others for years trying to get the crook out but she never entirely succeeded. She made considerable improvement and best of all she banished the bad mental state and became a bright and an attractive girl.

SUMMARY OF PRACTICAL POINTS

- | | |
|---------------------------|---|
| I. Diagnosis. | 1. Crook in backbone. |
| | 2. Inattentive state of mind. |
| II. Symptoms. | 1. Stoop. |
| | 2. Round shoulders. |
| | 3. Hump-back. |
| | 4. Dullness. |
| | 5. Shambling gait. |
| III. Cause. | 1. Stoop, round shoulders, and hump-back due in part to desk. |
| | 2. Dullness and gait due to failure to pay attention to self. |
| IV. Cause. | 1. Lack of exercise. |
| | 2. Lack of attention. |
| V. Treatment. | } 1. Exercise. |
| VI. Preventive treatment. | |
| VII. Prevention. | |
| | 2. Attention. |
| | 3. School doctors. |

CASE NO. 19

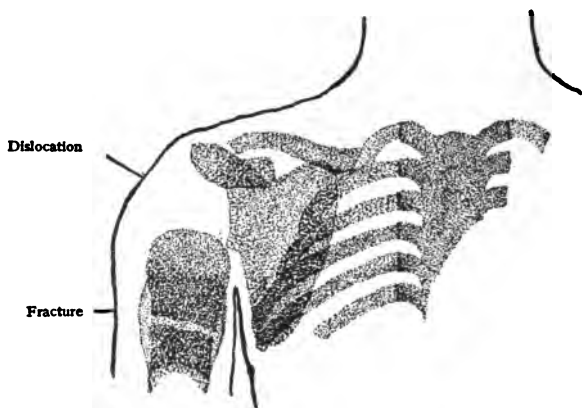
Mary R., aged twelve years, persisted in roller skating on the street before her house where teams and automobiles were passing all of the time. She rather enjoyed the dangerous sport of dodging them and often caught on wagons and cars for a ride. August 2nd, while dodging a Ford delivery wagon, she collided with the curb and landed on her right shoulder. When she got up the pain in her shoulder was overwhelming.

What would you do?

DISCUSSION—CASE NO. 19

The case of Mary R., who collided with the curb, teaches several lessons. They did the right thing in losing no time summoning a doctor who said that he thought there was a fracture of the bone of the upper arm, the humerus, and advised that an X-ray plate be taken. The parents refused because it would cost ten dollars.

The girl's parents did the wrong thing in not having an X-ray plate taken. An X-ray plate should always be taken



X-ray of a fracture and a dislocation. The crack across the bone of the arm is a fracture. The head of the arm bone ought to be up in the joint.

in case of fracture. If it is so easy to tell that there is a fracture that it is not necessary to take an X-ray plate to tell whether there is a fracture or not, the X-ray should be taken later to see that the bone has been set properly.

The doctor put a plaster-of-Paris cast on the shoulder. Three weeks later the cast was removed. The girl could

scarcely move the shoulder at all. The doctor again advised an X-ray plate. The parents again refused. They said that a broken limb was always hard to move after it knitted. They should have done as the doctor advised. He knew that this limb was not working as even a broken limb should.

At the end of three months, she could move the right arm only about half as much as the left. The doctor's advice was then heeded and an X-ray plate was taken. It showed that the head of the humerus was out of joint and that the humerus had also been fractured as the doctor said. As you see from the picture, the humerus is the bone in the upper arm, and the head of the humerus fits into the shoulder joint.

The little girl had to have a surgical operation to get the arm back in place. The operation was successful and the arm became almost as useful as ever. She was very lucky not to have a stiff shoulder. This operation is not always successful.

Surgical operations should be performed when necessary to save the body or a part of it. They should be avoided as much as possible because of the danger, expense, and loss of time.

If the X-ray plate had been taken in the beginning, she would not have been in as great danger of being crippled as she was. Thousands of people are crippled every year because X-ray plates are not taken to make sure that their broken bones are in proper position.

Accidents in the streets occur in just this way. This girl was making a playground out of a crowded street. Thousands of accidents occur every year because children run and play carelessly on streets where there are automobiles and teams. The only way to prevent these accidents is for boys and girls to walk along the street carefully and to play in

playgrounds. If there are few playgrounds, certain streets should be closed to traffic during the afternoon and the boys and girls should be given a chance. School yards ought to be used in summer and after school.

SUMMARY OF PRACTICAL POINTS

- | | |
|---------------------------|---|
| I. Diagnosis. | Fracture and dislocation of humerus. |
| II. Symptoms. | 1. Pain.
2. Inability to move. |
| III. Treatment. | 1. No X-ray.
2. Cast. |
| IV. Preventive treatment. | Determine position of fragments with X-ray. |
| V. Prevention. | 1. Children be careful on streets.
2. Close streets for playgrounds.
3. Use school playgrounds. |

CASE NO. 20

James R., aged nineteen years, picked up an electric wire after a storm to get it away from the front of the house. He was careful to pick it up by the insulation so that he would not get a shock. At once the body of the young man was twisted into knots. A group of people gathered around. No one offered to touch him.

What would you do?

DISCUSSION—CASE NO. 20

In such a case as that of James R., who picked up a live wire and received a series of shocks, the thing to do is to free the person with something dry that will not conduct electricity. Anything that is wet will conduct the electric current. In this case, the wet insulation covering the wire must have conducted it.

A dry coat, vest, pants, skirt, sweater, or board would not conduct the current. Rubbers, rubber gloves and a rubber coat should not be depended on to use in pulling a live wire from a person. They are apt to be wet and they are not always pure enough rubber to be non-conductors of the current. People and books will tell you that rubber is a good thing to use, but that is not right.

In this case, a passing school teacher put her rubbers over her hands, grabbed him by the coat tails and pulled him off. The fact that his coat was dry and that she did not touch his body and not the rubbers were what kept her from getting a shock.

The common things that conduct electricity are the body, water, and metals of all kinds.

The insulation on a live wire is very apt not to insulate the wire but to conduct the current. Usually when wires are down they are wet and the insulation is not effective.

When the young man was freed, he fell to the ground as if dead. The by-standers for the most part thought that he was, but a policeman sent a hurry call for a doctor and started to do artificial respiration.

When the doctor arrived he found that the man's heart was still beating and told the policeman to keep on doing artificial respiration.

They kept it up for about three hours. Then the young man began to breathe by himself. In twelve hours he had become conscious enough to complain of a bad headache.

In any electrical accident, artificial respiration should be kept up for a long time. Men have been revived when it had to be kept up for twenty-four hours. The brain and nervous system are put out of commission by the electricity. If the rest of the body can be kept going until the brain has a chance to recover, the victim will get well.

He had been unconscious because the electricity had affected his brain. Nerves run from the brain to all parts of the body and are very good conductors of electricity. So, they immediately conducted a lot of electricity from the hand holding the wire to the brain.

The nerves also conducted the electricity to the muscles. As the electrical impulses or shocks came to the muscles they made the muscles contract into knots which every one noticed and feared.

Normally the brain sends impulses along the nerves to the muscles. These impulses also cause contractions of the muscles and are somewhat like the electrical impulses.

Most such accidents can be prevented by having the wires in underground conduits instead of on poles.

SUMMARY OF PRACTICAL POINTS

- | | |
|---------------|--|
| I. Diagnosis. | Live wire. |
| II. Symptoms. | Contraction of muscles. |
| III. Cause. | Nerves conducting electric impulses instead of nerve impulses. |

IV. Treatment.

1. Removing man with dry coat or dry board.
2. Avoiding anything wet.
3. Avoiding rubber articles.
4. Artificial respiration.

V. Prevention.

Conduits.

CASE NO. 21

Mildred P., aged twelve years, started to school on roller skates but soon caught on the back end of a delivery wagon. As the delivery wagon turned to go off the street she let go and found herself face to face with a rapidly coming automobile. She crossed speedily in front of this and went squarely before a fast flying street car which knocked her about thirty feet. When picked up she was unconscious. Blood was trickling from a large bruise over her left temple. She was rushed to a hospital. Here the doctor noticed that her right arm was paralyzed and found that the only broken bones were two ribs on the left side. She was breathing only twelve times per minute and her pulse was only forty. For twenty hours she lay unconscious, paralyzed in the right arm, with slow pulse and respiration. The doctor advised that an operation be performed. The parents refused.

What do you think is the matter with the girl?

DISCUSSION—CASE NO. 21

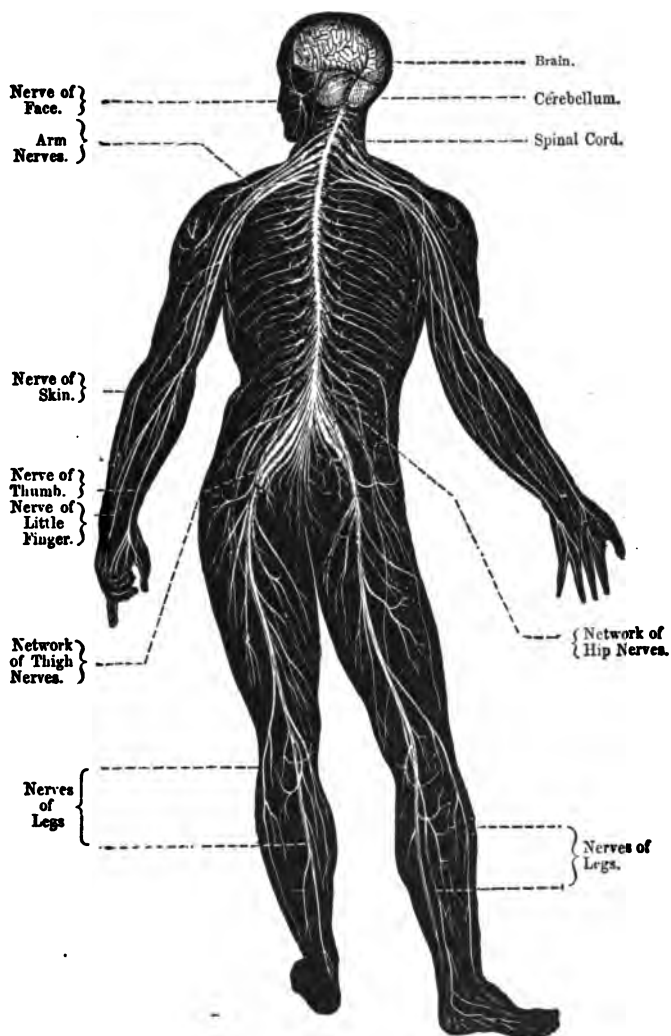
In the case of Mildred P., the unconsciousness indicates that she had something the matter with her brain. The brain is the seat of consciousness. If it is disabled, you lose consciousness.

In trying to form an opinion about any matter, you should note the facts that present themselves prominently and give you a lead. In this case, the large bruise over the left temple is the most striking thing. The doctor examined it carefully to see whether the skull underneath was broken. He could not feel any broken place but suspected a fracture.

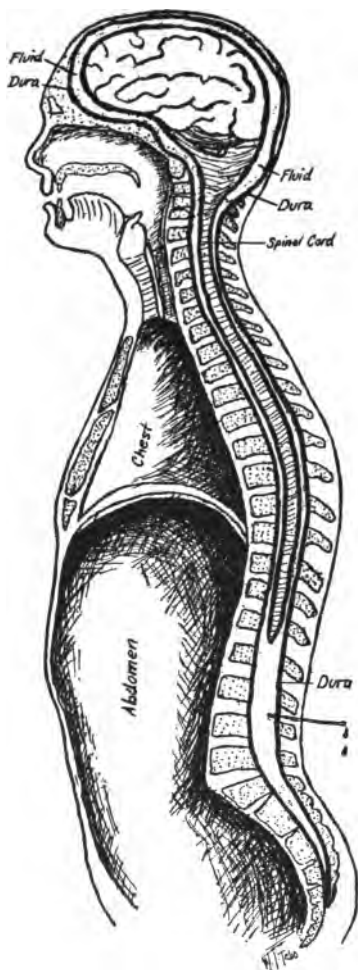
He told the parents that he did not know whether there was a fracture of the skull or not but he did know that the pressure inside of the skull was too high and ought to be relieved by operation.

Several things told him that the brain was being pressed on. The slow pulse and slow breathing were caused by pressure on the lower part of the brain, the part called the medulla. In the medulla, there are centres that send out impulses to the heart which determine the pulse rate and to the diaphragm, which determine the rate of breathing. Those impulses govern the contraction of the heart and diaphragm. When the medulla is pressed on, it does not send out as many impulses and the heart and diaphragm do not contract as rapidly as usual.

The brain ordinarily is protected by the way it rests inside of the skull. It rests in a tough sac of membrane called the dura. This membrane encloses the brain like a bladder and has fluid in it around the brain. Any ordinary blow to the head will merely rock the brain in the fluid and shake the fluid up a little bit.



All of the nerves except those from the face criss-cross after they enter the spinal cord before they reach the brain.

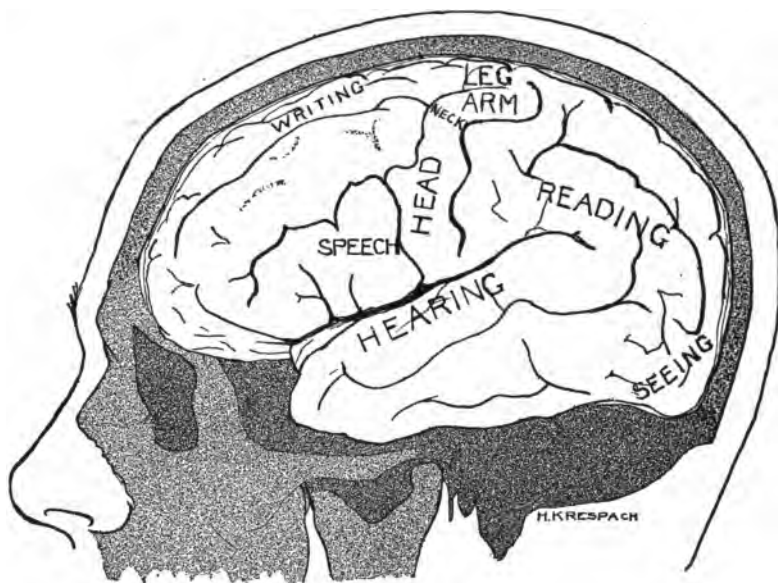


The brain and spinal cord rest in the sac formed by the dura. The sac is filled with fluid.

In case of a very severe injury, such as this one, the amount of fluid is almost always increased. The space within the dura remains the same. Crowding more fluid into the same

space increases the pressure on the brain. The doctor was sure that that had happened in this case.

Along the front surface of the brain, there are centres that govern the movements of all of the groups of muscles in the different parts of the body from the head to the foot. The



Nerve fibres run from each centre in the brain to the part it controls.

doctor knew that the centre which governs the right arm was directly under the bruise on the left side, and thought that the same force that caused the bruise might have put the arm centre out of order. He knew that the centre was not sending impulses to the arm because a limb is paralyzed when for some reason it no longer receives impulses that will make it move.

CASE NO. 22

Mildred P. had been told not to roller skate or bounce a ball on the street where the trolley cars ran or fool around on the street with the other children when coming home from school. She did not pay any attention to what her mother and a man from the street railway company said. Instead of walking along on that street and minding her own business she was always starting games of tag, rolling a hoop, or roller skating.

Let us see what the outcome of her case was. Next day she was very much worse. At this time she was breathing only six times a minute and gave no sign of returning to consciousness.

Would you consent to an operation?

DISCUSSION—CASE NO. 22

On the second day after the accident, these people again refused to have an operation. They had said before that the surgeons might do her some harm. On that day they changed and said it was too late to do any good, but finally did consent to an operation.

At the operation, the surgeon cut through the scalp over the bruise at the left temple. The skull was fractured and a piece of it was depressed on the arm centre. The dura was bulging with pressure. He clipped away the depressed fragment of the skull and opened the dura. About two tea-cup fulls of fluid ran out. The rate of breathing jumped to sixteen a minute and the pulse became faster the instant the fluid began to flow.

Two hours after the operation she was conscious. Twenty-four hours after the operation the paralysis was gone. In two weeks she was up and as well as ever except for a scar that would not show in her hair and a place where a little bit of the skull was lacking. The brain is so well protected by the dura and the scalp at that point that the loss of bone was of no particular importance.

Many accidents occur in this way because boys and girls use streets for playgrounds. Playgrounds should be provided. If there are not vacant lots and parks, certain blocks should be closed to traffic during the afternoon and made into playgrounds. Boys and girls need play just as much as they need food and they should have places to play.

SUMMARY OF PRACTICAL POINTS

I. Diagnosis.

1. Fracture of skull.
2. Pressure on brain.

II. Symptoms.

1. Paralysis of right arm.
2. Slow breathing.
3. Slow pulse.
4. Unconsciousness.

III. Cause.

All due to pressure on brain.

IV. Treatment.

Operation to relieve pressure.

V. Preventive treatment.

Operation sooner.

VI. Prevention.

1. Provide playgrounds.
2. Do not play on streets.

CASE NO. 23

Mr. E. C., aged twenty-five years, while running on an indoor track in the gymnasium, to prevent himself from falling, struck his arm against the wall. He fell and felt a great pain in his arm. It swelled up immediately just above the wrist. The arm was plainly broken.

A crowd gathered around him at once and caused all sorts of excitement. He was carried to the locker room where another noisy crowd collected and offered all sorts of advice while a doctor was being summoned.

In the locker room his face became pale. He felt sick at the stomach. His limbs became limp. His eyes became bleary. He lost consciousness for a moment and remained weak and pale after he revived.

In addition to having a broken arm what do you think is the matter with the man that made him have a fainting attack?

DISCUSSION—CASE NO. 23

When the writer asked his class what they thought caused Mr. E. C. to become pale, feel sick, become limp, get bleary eyed, and faint, one little girl said she thought the noise had rushed to his head.

She had the right idea. Something had rushed to his head, or rather to his brain. The broken fragments of bone had injured the nerves that lie close to them in the arm and had sent showers of impulses along the nerves to the brain.

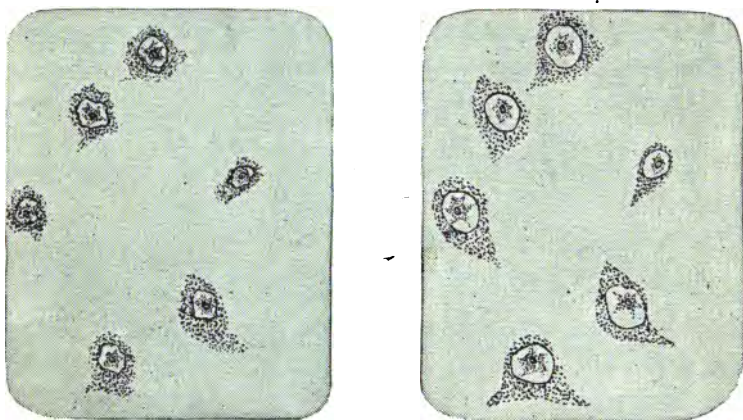
That had worn the brain out and it was in an exhausted condition. Then when the impulses from the noise, the advice, and the excitement were added that was enough to wear out the brain so badly that he became unconscious for a little while. The worn out condition of the brain is called shock.

In an accident of this kind, the thing to do is to reassure the victim. Tell him that he is all right and get him into a quiet place or get the bystanders away. That will cause fewer impulses and make him better able to withstand those that do come.

In case of any accident, there is more or less injury to nerves and consequently more or less shock. It often happens that the victim of an accident suffers severe enough shock to die. The noise, excitement, etc., are sometimes just enough to put the brain completely out of commission. In a case of that kind, a few reassuring words and absolute quiet have often saved a life.

Dr. Crile of Cleveland, Ohio, has done a great deal of work trying to learn what happens to the body when a state of shock occurs. We would not have been able to tell you if he

had not found out and we would not know what to do. He has shown that the showers of impulses alter the appearance of the brain cells as they are seen under the microscope. It makes them smaller. There are not as many granules in the cells and the cells have a shrunken appearance when compared to the brain cells of an animal that is just waking up in the morning as you may see in the illustration.



The brain cells on the left side are in a condition of shock. The bodies, nuclei, and nucleoli of the brain cells are shrunken and irregular. The granules are smaller and fewer in number.

His face became pale because the disordered cells in the brain at first sent too many impulses to the nerves that govern the contraction and dilation of the blood vessels there. These impulses made the blood vessels contract, squeezed the red blood out of his face, and left it pale.

He felt sick at the stomach because the disordered brain cells sent impulses along the nerves that go to the stomach and caused the stomach to work improperly. When the stomach works improperly, it sends impulses back to the

brain. You and your brain interpret these impulses as the feeling of being sick at the stomach.

His limbs became limp when the brain stopped sending out too many impulses and began to send too few. Every second the brain sends slight impulses to all of the muscles in the limbs. These impulses cause a very fine contraction that you can see in your fingers, if you attempt to hold your hand absolutely steady. These fine contractions give the muscle tone and keep it alive. If a nerve gets cut so that a muscle does not receive any impulses, it soon shrivels up and loses its tone. If the muscles had no tone, the body would be like a wet sack all of the time the muscles were at rest.

The disordered brain also sent either too few or too many impulses to the eyes and made him bleary eyed.

Shock should be avoided by preventing accidents and it should be kept from getting worse by quiet and reassurance.

SUMMARY OF PRACTICAL POINTS

- | | |
|--------------------------|--|
| I. Diagnosis. | Shock. |
| II. Symptoms. | 1. Pallor. |
| | 2. Nausea. |
| | 3. Collapse. |
| | 4. Bleary eyed. |
| | 5. Loss of consciousness. |
| III. Cause. | All due to brain, worn out by
rush of impulses. |
| IV. Treatment. | Quiet and reassurance. |
| V. Preventive treatment. | Quiet and reassurance. |
| VI. Prevention. | Prevent accidents. |

CASE NO. 24

Mr. E. H., aged twenty years, was in the habit of driving his automobile very rapidly. It was said of him that he always slowed down to forty miles an hour when he saw a danger signal. The high speed racked his machine to pieces. It was always breaking down.

He had been fined repeatedly for speeding and the judge had threatened to take his license away. One day he was speeding along the main street about forty-five miles an hour past a bunch of school children. He just got by when the machine veered suddenly to the left, went bang into a telegraph pole, turned upside down and threw him up against a house.

He was rushed to the hospital. For a day he lay unconscious. His pulse rate was forty and his breathing ten per minute. His left arm and leg and the right side of his face were paralyzed.

What do you think is the matter with the man?

DISCUSSION—CASE NO. 24

The unconsciousness, in this case, just as in the case of the little girl who received a fractured skull while roller skating on the street, is due to an injury of the brain.

Just as in that case, the slow pulse and breathing are due to pressure on the medulla and the paralysis is due to pressure on the centres for the left arm, left leg, and right face.

You wonder, at once, why the right side of the face and the left side of the body are paralyzed. The centres for all of these are together on the right side of the brain. The fibres going to the arms and legs criss-cross at the base of the brain. Those going to the sides of the face run out on the same sides.

This case is unlike the other in that there is no bruise, but there could be a fracture without any bruise. Another thing that causes paralysis in head injuries is hemorrhage. The blood vessels in the dura often get injured and bleed into the space between the skull and the dura.

When, at the end of twenty-four hours, the man showed no signs of reviving, his people were told that the injury would not take care of itself. Consequently they were told that an operation ought to be performed to relieve the pressure and paralysis. They were sensible and consented.

At the operation the surgeon cut a flap of bone from the skull at the right temple. He did this in such a way that he could put it back. Then he removed a clot of blood the size of a hen's egg from between the skull and the dura. The dura was not bulging with fluid under pressure. So, instead of exposing the brain by opening the dura, a hollow needle was inserted into the spinal canal low down in the back as

you may see in the illustration. The fluid flowed out and the pulse and breathing soon became faster.

He had really opened the dura at that point because it is continued down over the spinal cord as a sac so that the brain and the spinal cord both lie in the same cavity in the same fluid; all of which you may see in the same illustration. That operation is a safe operation because the sac runs down farther than the spinal cord and there is no danger of injuring the cord, if operator goes low enough. It was better to do that than to expose the brain by opening the dura. When the dura heals it might catch some of the brain in a scar and cause trouble later.

The spinal cord is a collection of nerves running from the brain to the body.

He regained consciousness again in three hours. The paralysis was gone in three days and in two weeks he was up. In the old days before surgery had improved so much, they did not operate in these cases, and almost all of them died.

This accident, like the other one where the lady got a broken arm and leg, was due to speeding. The steering gear broke. Things like that happen to heavy, speedy cars. The fast driving is always putting something about them out of order. Limiting the weight and horsepower of cars would prevent a great many accidents. It would also save money used to repair roads that the heavy, speedy cars have torn up.

Boys and girls can prevent a great many accidents also. There is nothing a driver fears so much as having a boy or girl run out into the street. Stick to the sidewalk, look when you cross, and do not get close to automobiles in motion. It takes very little to make an automobile veer and hit some one. The children in this case had a very narrow escape.

SUMMARY OF PRACTICAL POINTS

- | | |
|----------------|--|
| I. Diagnosis. | Clot of blood on the brain. |
| II. Symptoms. | 1. Unconsciousness. |
| | 2. Slow pulse. |
| | 3. Slow breathing. |
| | 4. Paralysis of right side of face. |
| | 5. Paralysis of left arm and left leg. |
| III. Cause. | 1. All due to pressure on brain. |
| | 2. Paralysis of left arm and leg because nerve fibres criss-cross. |
| IV. Treatment. | 1. Operation to remove blood clot. |
| | 2. Lumbar puncture to relieve pressure. |
| V. Prevention. | 1. Less speed. |
| | 2. Lighter cars. |

CASE NO. 25

When Willard K. was four years old he was hit on the head with a boat-hook by his sister, while at play. The blow made him unconscious and he was put to bed. The family physician saw him and noticed that his pulse and respirations were both slow. He advised tapping the spinal canal to relieve pressure within the skull but the family refused. The boy revived in two days.

Eight weeks later as he was lying on the sofa his left arm began suddenly to twitch. Then the right side of his face. Then his left leg. Finally, the right arm and leg. For a few minutes the limbs worked violently then all became quiet and he lay unconscious. The child was asleep most of the time for the rest of that day. He had had six such attacks during the past four months.

What do you think is the matter with the child?

DISCUSSION—CASE NO. 25

The doctor had warned the family that the child might have fits after the accident. He told them that the accident might have resulted in bleeding upon the brain and that the blood was apt to become a scar which would irritate the brain and cause convulsions or fits.

The convulsions or rapid contractions of the muscles occurred because the irritated brain sent showers of impulses to the muscles that resulted in the repeated contractions noted.

Tapping the spinal canal might have drawn off the fluid and blood which was causing the increased pressure and kept the brain from being caught in a scar.

As it was, the little boy had to have an operation. The surgeon opened up the skull and removed a scar from the right side of the brain. The convulsions stopped after the operation but the little boy did not seem quite right in his mind a year afterward.

The way to prevent an accident of this kind is to be very careful about hitting another person on the head. The head will stand a pretty good blow from a fist or something like that, especially when it is dodging away from the blow and not into it, but it will not stand hard blows from solid things like clubs and rocks.

SUMMARY OF PRACTICAL POINTS

- | | |
|---------------|---------------------------------------|
| I. Diagnosis. | Scar of brain. |
| II. Symptoms. | Convulsions. |
| III. Cause. | 1. Blow, bleeding, formation of scar. |

- III. Cause—*continued*. 2. Shower of impulses from scar.
- IV. Treatment. Removal of scar.
- V. Preventive treatment. Lumbar puncture at time of injury.
- VI. Prevention. Avoid blows to head.

CASE NO. 26

John R., aged fourteen years, while in swimming, felt a pain in the calf of his right leg. It became hard as a stone and pained him every time the muscle contracted. He called for help and in fright started to drown. He sank twice and was going down again.

What do you think is the matter with the boy?

DISCUSSION—CASE NO. 26

There are two things the matter with this boy, cramps and fright. The latter was the worse of the two.

Most people, who are said to have drowned from cramps, did not drown from the cramps at all but drowned because they became afraid. Cramps are not necessarily fatal. Almost never is there a long-distance swimming meet in which some one does not get cramps in his legs. He does not get frightened and start to drown but keeps on swimming and kicks the cramp out. It hurts but it can be done.

The thing to do in a case of this kind is to reassure the victim. This boy was not more than five yards from the pier. The swimming instructor looked contemptuously at him and called out. "That cramp's nothing. Keep your nerve and kick it out. I'll get you, if you can't. Try it."

The youngster tried it and in a few seconds kicked the cramp out.

When the writer asked his class what they would do in an accident of this kind, most of them said they would jump in and try to pull the boy out. That is the brave thing to do but it often happens that there is a much easier and surer way of rescue. We once saw a tall boy wade out to the edge of a hole, reach out his hand to a small boy who was drowning and pull the small boy safely into shallow water. Throwing a piece of plank, reaching out a board, or throwing a life ring on a life line have often saved lives. It is wise to take the easiest way, but every boy and girl should know how to swim well enough to rescue another person from the water and should learn life saving in the water. There is almost as

good reason for teaching swimming and life saving in public schools as there is for teaching spelling.

You will often hear people say that to rescue another person from the water you must know how to swim. That is only half right. You must also know life saving. Many good swimmers do not know enough about life saving to be capable of rescuing a person. Not only must the rescuer swim well, but he must know how to break the grasp of a person struggling in the water and how to tow the person in the water.

When cramps occur, a shower of impulses is sent to the muscles. They contract. Before they fully relax more impulses come and keep them contracted into a hard knot. No one knows how the shower is started.

The worst cramps are those that occur in the muscles of the back and abdomen. They are not necessarily fatal. It is possible to swim on the back until they pass away. Those cramps are almost always caused by going into the cold water while the body is heated or by going in too soon after a meal.

These accidents can be prevented, if every one will learn to swim well enough so that he will become at home in the water and will not get afraid.

SUMMARY OF PRACTICAL POINTS

- | | |
|----------------|-------------------------|
| I. Diagnosis. | 1. Fright. |
| | 2. Cramps. |
| II. Symptoms. | Contraction of muscles. |
| III. Cause. | Shower of impulses. |
| IV. Treatment. | 1. Keep on swimming. |
| | 2. Reassurance. |

IV. Treatment—*cont.* 3. Rescue by easiest means available.

4. Rescue by swimming.

V. Preventive treatment. Practise swimming and life-saving.

VI. Prevention.

1. Do not swim when overheated.

2. Do not swim too soon after meals.

CASE NO. 27

Clarence B., aged sixteen years, and Clara C., aged sixteen years, were in first year at high school. Neither one was getting along very well. Clarence was bright enough but did not pay attention and would not work out anything that was hard, like problems in algebra or geometry. He would just quit and say that he could not. He seemed nervous and high strung. Clara was just the opposite. She was staid, slow and stupid. They were both making a mistake in regard to the same thing. One was overdoing, the other was underdoing.

What do you think was wrong?

DISCUSSION—CASE NO. 27

Clarence was not getting enough sleep and Clara was getting too much. One has to have sleep to live.

In the evening Clarence went to the poolroom two or three times a week. There he often played pool for money until eleven or twelve o'clock. The excitement was hard enough on the nervous system so that when he did get to bed half an hour later he rolled and tossed and did not sleep soundly. He had to get up by seven-thirty in the morning. So, he was only getting seven hours of poor sleep several nights each week. He said that he caught up by taking a long sleep of eight or ten hours once or twice a week.

Clara went to bed every night at nine o'clock and slept until eight in the morning. That made eleven hours in bed. For growing children up to the age of fifteen there is no limit to how much time they should sleep. They should sleep all they want to but after that the average person should get about eight hours sleep every night. The ancient Greeks had the right idea when they said to divide the day into three periods, eight for work, eight for sleep, and eight for meals and play. She started going to bed at eleven, getting up at seven, working six hours a day at her schoolwork and two at music which she took up at this time. She used the other eight hours eating meals, getting washed and dressed for meals, exercising, bathing, playing games, reading books or magazines, or going to the moving pictures. A year on the new plan made a great change in her. She became one of the best pupils in school and was bright and attractive and accomplished afterward.

Clarence did not do as well. No one could convince him

that he had to have a regular bed time. He said that, if he got six hours sleep one night and ten the next, it made eight hours for each night and that it was just as good as if he had eight each night. The six and ten are better than two sixes but the way to rest the nervous system is to have regular habits in everything, sleep especially. He did not have regular habits of sleep, work, play, meals or anything. The result was that he got more and more nervous and less and less able to concentrate his mind on his work. At the end of a year his parents sent him to a military school where regular hours of sleep, meals, play, work, and recreation were required. He was a much better student at the end of a year. He had lost his nervousness, and his body was developed better.

SUMMARY OF PRACTICAL POINTS

- | | |
|---------------|---|
| I. Diagnosis. | Too much and too little sleep. |
| II. Symptoms. | 1. Too little—
a. Nervousness.
b. Inability to work.
c. Inability to pay attention. |
| | 2. Too much—
a. Slowness.
b. Stupidity. |
| III. Cause. | 1. Nervousness, inability to work, inability to pay attention—brain not re-created by sleep.
2. Slowness and stupidity—brain not exercised enough. |

IV. Treatment.

Too little—

1. Regular habits.

Too much—

1. Less sleep.
2. More work and play.

V. Prevention.

1. Regular habits.
2. The Greek plan for the day.

CASE NO. 28

In 1798, Little Turtle, the chief of the Miami Indians, journeyed to Washington from Indiana. During the preceding year three thousand of his subjects had been killed by using a certain substance.

What do you think was responsible for all of these deaths?

DISCUSSION—CASE NO. 28

Alcohol is very hard on Indians. Traders had been selling liquor to them. Liquor had not only made them worthless and shiftless, but as you see had even robbed them of their lives. It either attacked certain organs in the body, the brain, the liver, the organs that circulate the blood, or the kidneys and caused death in that way; or it weakened the bodies of the Indians so that other diseases, caused by germs, attacked them and carried them off. Alcohol has had more to do with exterminating the Indians than anything else.

The President and Congress inquired into the matter and found that not only were the Indians of Little Turtle being killed off by liquor but the Indians everywhere were rapidly disappearing for the same cause. Consequently, in 1802, a law was passed forbidding the sale of liquor on lands set apart for Indians. Since that time, the sale of alcohol has been forbidden on about half of all of the land in the United States.

This law did not stop the use of liquor among the Indians. Unscrupulous traders kept selling liquor to the Indians in spite of the law. As long as they could get liquor from territory that permitted the sale of liquor the use of liquor continued. As a result, most of the Indians are now gone.

The lesson you can learn from this experience of the Indians is that alcohol is very dangerous stuff to fool with. It cannot possibly do you any good and may do you a great deal of harm. It is doubtful whether any one ever used liquor in such small amounts that it did not harm him. People who sell liquor keep the liquor traffic going. They

claim that it is possible to use liquor in moderation and get a great deal of pleasure out of it without being harmed. Later we shall learn more about the use of liquor in moderation.

SUMMARY OF PRACTICAL POINTS

- | | |
|----------------|---|
| I. Diagnosis. | Alcohol. |
| II. Symptoms. | Destruction of Indians. |
| III. Cause. | 1. Alcohol attacks different organs of body. |
| | 2. Alcohol weakens a person and makes him an easy prey for germs. |
| IV. Treatment. | Law forbidding sale on lands of Indians. |
| V. Prevention. | Abstinence. |

CASE NO. 29

Lieutenant R. E., noticed that on certain days the men at target practice shot just about one-third better than they did on other days

Why do you think the men did much better on some days than on others?

DISCUSSION—CASE NO. 29

These soldiers were using alcohol in moderation on the days when they shot poorly, that is, they would take one or two or possibly three drinks of beer or perhaps a glass of whiskey. One glass of beer was enough to affect their nervous systems so that they could not shoot straight. That means, one glass of beer lessened their effectiveness one-third.

A great many experiments have been tried to see what the effect of alcohol is on people's effectiveness. They all point to the same conclusion. Alcohol even when used in moderation does lessen a person's effectiveness.

These men did not know that they were being harmed by liquor. They did not feel bad. They could not tell it themselves. The reason for that was because alcohol was dulling their brains and keeping them from realizing what it was doing to them. In several of the experiments, when the men were doing poorer work, they actually thought they were doing better because they were so deceived by the alcohol.

If alcohol lessens the effectiveness of every person who uses it by one-third, and, if a large number of the people of any country use it, you can see how much that will affect the work of the country. Every one will suffer because only two-thirds as much work will be done as ought to be done. That will make the price of everything high and it will make living expensive for every one.

The only way to prevent that is not to use alcohol. The world cannot afford to let its people use alcoholic liquors. The loss in money and people is too great.

SUMMARY OF PRACTICAL POINTS

- | | |
|--------------------|--|
| I. Diagnosis. | Alcohol. |
| II. Symptoms. | Poor shooting. |
| III. Cause. | Moderate use of alcohol affected their brains and nervous systems. |
| IV. Prevention. | Avoid alcohol. |
| V. General lesson. | Moderate use of alcohol lessens efficiency. |

CASE NO. 30

In the harbor of C. there occur not less than a hundred cases of boats running into one another each year. It often happens that a boat is sunk and a number of people are lost. Most of these accidents can be traced to a common cause.

What do you think was the common cause?

DISCUSSION—CASE NO. 30

The common cause for all of these accidents was alcohol. When the pilots of the boats got to drinking, their brains did not work properly. Then they could not steer the boats properly and the boats would collide. They would either use the wrong signals or misunderstand the signals from the other boat.

A great many accidents of the same kind occur because people, who have similar positions where they are responsible for the lives of passengers, drink liquor. Chauffeurs, engineers, and motormen are prominent examples.

The only way to prevent these accidents is not to allow the use of liquor in our country. As long as alcohol is sold freely in our country people of this kind are bound to get it. Then the trail of accidents and deaths will follow.

It takes only one drink of liquor to put a man under the influence of it. He does not have to be drunk to be under the influence of alcohol. The part of a man that is affected by alcohol is the brain. When that does not work properly, nothing works properly. The entire running of this world, aside from the acts of God, depends on the human brain.

SUMMARY OF PRACTICAL POINTS

I. Diagnosis.	Alcohol.
II. Symptoms.	Accidents.
III. Cause.	Brains of pilots affected by alcohol.
IV. Prevention.	National prohibition.

CASE NO. 31

Dr. Parkes made the following observation about a regiment of a thousand men in India. In this regiment there were four hundred men who could "march farther without getting tired; fight harder without running away; and live longer without getting ill," than the other six hundred.

Why do you think the four hundred were so much better soldiers than the six hundred?

DISCUSSION—CASE NO. 31

The four hundred did not use alcohol in any way. The six hundred did. Alcohol was affecting their brains and deceiving them. Most of them said they were using it in moderation and were sure they were not being harmed by it. It took a man like Dr. Parkes who really figured the problem out to find out whether they were or not.

A great many observations of this kind have been made on soldiers because soldiers are gathered together and it is easy to observe and follow just what they do. All of these observations point to one conclusion. The use of liquor does men a great deal of harm. It makes them tire more easily. They have less courage for fighting and they do not live as long as men who do not use alcohol at all. Life Insurance Companies have verified the statement that users of alcohol are short-lived. People who use liquor, cut years off their lives.

SUMMARY OF PRACTICAL POINTS

I. Diagnosis.	Alcohol.
II. Symptoms.	All save four hundred weak.
III. Cause.	Four hundred not weakened by alcohol.
IV. Prevention.	Total abstinence.

CASE NO. 32

In the city of I. several hundred bad boys were tried every year in the Children's Court. Most of these boys would brace up and be men when properly urged. A certain class of them would not.

What do you think that class of boys were?

DISCUSSION—CASE NO. 32

That class of boys were cigarette smokers. All tobacco contains nicotine. Nicotine affects the brain. It does not ruin a person as openly as alcohol does, but there is no doubt that it does have a degenerating influence on a great many people, especially on growing children. It stunts their bodies, weakens their minds, and weakens their characters. The brains of these boys from the Juvenile Court had been weakened so much by nicotine that they could not brace up.

You have got to make up your mind what you are going to do about the tobacco question. The people who want to make money out of tobacco will tell you that it will not do you any harm to use it in moderation but it will give you a great deal of pleasure. A good many experiments have been carried on to see whether the moderate use of tobacco is injurious to people or not. There is absolutely no doubt that any use of tobacco at all by children is injurious to them. Thousands of school children have been studied. It always turned out that those who used tobacco were poor scholars at school, were weaker and more poorly formed than those who did not use tobacco. The same thing is true of college students who have gotten their growth. If they use tobacco, their minds and bodies are both poorer.

The nicotine in the tobacco is a very deadly drug. A drop of pure nicotine on the tongue is enough to kill. It is poisonous enough so that it usually makes a person sick the first time he smokes or chews. The only reason the users of tobacco can stand it at all is because they get only a little of the drug at a time when they smoke or chew. Gradually,

they become accustomed to the small doses and take them without getting sick.

SUMMARY OF PRACTICAL POINTS

- | | |
|-----------------|--|
| I. Diagnosis. | Nicotine. |
| II. Symptoms. | Weakness. |
| III. Cause. | Nicotine affects body, mind,
and character. |
| IV. Prevention. | Abstain from tobacco. |

CASE NO. 33

A street railway company in the city of S. was having considerable trouble with its motormen. They ran the cars carelessly. As a result, a great many accidents occurred. Upon investigation, the authorities of the street railway company found that nine out of every ten men who did not run their cars properly belonged to the same class.

What do you think that class was?

DISCUSSION—CASE NO. 33

All of these motormen were tobacco users. The effect of tobacco on a motorman's brain was just enough to take the keen edge off his mind. Then his brain would not work quickly and truly and accidents would occur. If they would stop using tobacco, fewer accidents would occur.

Tobacco is not as apt to kill and destroy as alcohol but it does take the keen edge off a person's mind, and it does interfere with his success.

Users of tobacco usually waste a great deal of time loafing around. In that way they weaken themselves. The good things in this life go to the strong. If you weaken yourself by any such indulgence in tobacco, you lessen your chances of being one of the strong.

SUMMARY OF PRACTICAL POINTS

I. Diagnosis.	Nicotine.
II. Symptoms.	Accidents.
III. Cause.	Nicotine dulled motormen's brains.
IV. Prevention.	Abstain from tobacco.

CASE NO. 34

During the war in South Africa the soldiers in the British army had to make a long march to relieve Ladysmith. On this march, the men who fell by the wayside were not the men who looked weak and thin. Almost all of the men who fell out were men of a certain class.

To what class of men do you think the soldiers who fell out belonged?

DISCUSSION—CASE NO. 34

The men who fell out were users of alcohol. This is exactly what you would expect. The men had been generally weakened by using alcohol. They were not drunkards or they would never have gotten into the army. They used liquor in what is called moderation.

The lesson you can learn from this is that liquor drinkers fall out the same way in the battle of life. They are the ones who go down by the way and never reach the goal of success they are heading for.

SUMMARY OF PRACTICAL POINTS

I. Diagnosis.	Alcohol.
II. Symptoms.	Falling out.
III. Cause.	Alcohol causes general weakness.
IV. Prevention.	Total abstinence.

CASE NO. 35

A good many years ago an African chief traveled all of the way from Africa to London to see Queen Victoria. The use of a certain substance was ruining his people. He wanted her to get a law passed forbidding the use of it.

What do you think the substance was?

DISCUSSION—CASE NO. 35

The substance was alcohol. You will remember that alcohol was also ruining the Indians. Perhaps you may hear it said some time that alcohol only affects people who are not used to it, such as Indians and negroes. That cannot be true. The Emperor of Germany and the leading men in Germany are able to see the bad effects of alcohol on the German people. Numerous German scientists have also observed the bad effects from experiments made on the German people. Their beer is very weak in alcohol but it affects them just the same.

You will hear a great deal of argument about the liquor question. Some people say that our nation ought to abolish the manufacture and sale of it altogether. No matter what comes of that, one of the strong can always clean up the little corner of the nation he inhabits. Be one of the strong. Take your own part on the alcohol question. Leave it alone.

SUMMARY OF PRACTICAL POINTS

I. Diagnosis.	Alcohol.
II. Symptoms.	Destruction of Africans.
III. Cause.	General weakening effect of alcohol.
IV. Prevention.	Total abstinence.

CASE NO. 36

A good many hundreds of automobile accidents occur in the United States every year. Many of these accidents can be traced to a common cause.

What do you think the common cause of all of these automobile accidents is?

DISCUSSION—CASE NO. 36

The common cause of all of these automobile accidents is alcohol. Almost every state in the United States has passed a law making it a penitentiary offense for any one to drive an automobile while under the influence of liquor.

The more you learn about liquor, the more you will be convinced that it never does any good and does do a great deal of harm. The more you learn about it the more you will doubt that there is any such thing as the moderate use of liquor. Most of the people who use it do not use it in such small doses that it does no harm, either to themselves or to any one else. The correct policy to pursue in regard to it is total abstinence.

SUMMARY OF PRACTICAL POINTS

I. Diagnosis.	Alcohol.
II. Symptoms.	Automobile accidents.
III. Cause.	Effect of alcohol on brain.
IV. Treatment.	Law against driving automobiles while under the influence of liquor.
V. Prevention.	Total abstinence.

CASE NO. 37

Life Insurance Companies have examined very carefully the different sorts of people whose lives they insure. They find that a certain group of people who handle a certain substance are shorter lived than other people. People who make the substance, who sell it, and who use it are all short-lived.

What do you think this substance is?

DISCUSSION—CASE NO. 37

The substance is alcohol. Before Life Insurance Companies collected these facts so carefully the people who wished to keep up the liquor traffic would always claim when such arguments were presented that they were not true. They said people who made the substance and sold it and used it were just as long-lived as anybody else.

Life Insurance Companies use these facts for the purpose of making money. If they were not true, the Life Insurance Companies would lose money by using them. The possibility of Life Insurance Companies using these facts, because they think they are true or want them to be true, instead of their really being true is rather remote. You must choose for yourself to which class you will belong: the short-lived or the long-lived.

SUMMARY OF PRACTICAL POINTS

I. Diagnosis.	Alcohol.
II. Symptoms.	Shortness of life.
III. Cause.	Different weakening and destructive effects of alcohol.
IV. Prevention.	Total abstinence.

CASE NO 38.

Allen B., aged twelve years, had had sore eyes for a year. The whites of his eyes were never clear. They were always more or less bloodshot. In the morning the lids were often stuck together and a whitish discharge was present in the corner. The lids were thickened and brownish.

What do you think was the matter with the boy?

DISCUSSION—CASE NO. 38

Allen B., who had had sore eyes for a year, was suffering from an irritation of the lids caused by the electric light. There was nothing wrong with his sight that required glasses.

Only the lids had been injured. The parts of the eye inside of the eyeball had been spared. When your eyes are injured by light so that you need glasses, the lens inside of the eyeball is the part most affected. The lids are lined by a delicate membrane called the conjunctival membrane. The strong light had irritated this delicate membrane in much the same way that the skin is irritated when one gets sunburned.

The trouble was remedied by giving the boy an eye shade and fixing the light so that the rays from it did not strike him directly in the eyes. Every one knows how hard the direct rays from a source of light are on the eyes. If you look directly at a source of light like the sun or an arc-light, the rays almost blind you. Yet every one knows that sunlight is the best light there is. The reason that sunlight is so good is because there is so much of it that it makes an even light and because it is softened down by the air and the objects it strikes before it reaches the eye.

Artificial lights have not those two great advantages. The best artificial light is one in which the source of light cannot be seen by the people in the room. Electric lights with shades turned upside down so that the light is softened by striking the ceiling and comes evenly from all parts of it are probably the best.

The uneven, unsoftened, direct rays from lights that can be seen by the person using them to work with do cause trouble with the eyes. If one can not have indirect lighting,

as described above, the light should have a good shade on it and be placed so that the rays will come over the left shoulder. The shade will make the rays of light come more indirectly and more evenly, and will soften the light. The position will keep the rays from striking the eyes directly and will keep the right hand from being shaded.

SUMMARY OF PRACTICAL POINTS

- | | |
|-------------------------------|--|
| I. Diagnosis. | Irritation of eyelids. |
| II. Symptoms. | 1. Whites of eyes not clear.
2. Whites of eyes bloodshot.
3. Discharge.
4. Lids thickened and brownish. |
| III. Cause. | All due to direct rays of light striking eyelids. |
| IV. Prevention and treatment. | 1. Eye shade.
2. Position of light.
3. Kind of light.
4. Shading of light. |

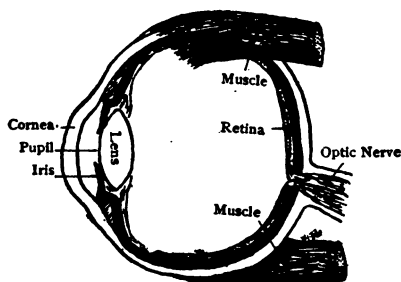
CASE NO. 39

John M., aged seventeen years, while learning to lay a stone wall, hit a very hard flinty piece of stone with a steel hammer. The stone was so hard that he had to hit with all his might a second time to break it. As the blow landed he felt a sharp pain in his right eye and could not see out of it after that.

What do you think was the matter with the boy?

DISCUSSION—CASE NO. 39

John M., who was hitting a very hard stone with a hammer, got two pieces of steel into his eye, one in the cornea, the little window on the front of the eyeball, and one deep in the eyeball at the edge of the lens. His family physician took him to an eye specialist. The piece from the cornea was removed by a powerful electric magnet, the other by operation. He regained the sight of the eye. Such accidents occur commonly among people whose eyes are exposed to flying particles. Men at work in flying particles ought to follow the example of automobile drivers and wear glasses.



Learn the different parts of the eye so that
you know them as well as the ABC's

In speaking of this case an old stone mason, who had put in about fifty years at the trade, said that he had known of several just such accidents. He claimed it was due to not keeping the tools in shape. He said that he would bet that the head of the hammer was split into small, fine ribbons of iron that were ready to fly off at any time. When they looked at the hammer they found that that was true. The

hammer should have been ground smooth and no hanging particles left on it.

The question of why he could not see arises. The piece in the cornea did not cloud it up and keep him from seeing. So, it must have been the one at the edge of the lens. The lens is a transparent object shaped something like a bean. It is inside the eyeball, just behind the colored iris. When we see anything, the lens has to throw the light on the back wall of the eyeball, the retina. It does this by getting thicker and thinner. The particles of steel kept the lens from moving at all in this case and made the eye blind for a while. When light strikes the retina, impulses are started up. These impulses are carried to the brain by the optic nerve. When you see things, the brain interprets the impulses as the things you see. Study the illustration and get acquainted with the parts of the eye.

SUMMARY OF PRACTICAL POINTS

- | | |
|----------------|---------------------------------------|
| I. Diagnosis. | Foreign bodies in eye. |
| II. Symptoms. | 1. Pain.
2. Inability to see. |
| III. Cause. | Piece of steel kept lens from moving. |
| IV. Treatment. | Removal by operation and by magnet. |
| V. Prevention. | 1. Goggles.
2. Care of tools. |

CASE NO. 40

Every one despises a bully. From the following case you will learn how mean and contemptible a bully can be. A real man helps those who are not as strong as he is. You must be a real man and watch over and protect people who are not as strong as you are. You must be nice to other people and try to make things pleasant for them. That will make the world a happier place for every one.

Gordon R. was older and larger than the other boys in his class in school. During the winter he made a practice of stinging smaller boys with snow balls. During the spring he sat in his back yard and stung them in the back with an air rifle as they passed by. He had been told repeatedly not to do that because he might put some one's eye out. The smaller boys were afraid to fight back but finally Theodore H. got an air-gun and gave battle. Each boy shot right at the other several times. Finally Theodore dropped his gun and put his hand to his eye where the blood was spurting out.

What would you do?

DISCUSSION—CASE NO. 40

In case of severe bleeding, the first thing to do is to press on the bleeding part. It is also a good idea to get the wounded person over a sink or get some clean towels around the wound so that the blood will not get all over everything. That may be done while waiting for a doctor.

The doctor stopped the bleeding in the eye by pressing on it with a clean towel. If the bleeding had been only slight, the blood would have clotted itself. We have already learned other ways of stopping the bleeding when it is more severe.

After the accident, the boy could not see out of his eye. In a week when the wound was healed up where the shot went into the eyeball, the boy went to see an eye specialist. The specialist said that the retina of the eye was destroyed. The retina is the net of nerves ending in the back of the eyeball. Since it could never again conduct impulses to the brain, the eye would always be blind. He advised the boy's parents to have the eye removed and to have an artificial one put in because it often happens that germs get into the eye in case of a deep wound like this. These germs were apt to travel over to the other eye at any time during the rest of the boy's life. The eye was removed and the shot with it.

He was lucky that the shot did not go into his brain and result fatally.

Most air guns will not shoot as deep as the brain. Some will shoot right through a man. Therefore, an air-gun should be handled just as carefully as a powder gun and should never be pointed at another person, much less shot at another person.

SUMMARY OF PRACTICAL POINTS

- | | |
|--------------------------|---------------------------------------|
| I. Diagnosis. | Wound of eyeball. |
| II. Symptoms. | 1. Bleeding. |
| | 2. Blindness. |
| III. Cause. | Bleeding—Blood vessels opened. |
| | Blindness—Retina destroyed. |
| IV. Treatment. | 1. Apply pressure to bleeding point. |
| | 2. Protect surroundings. |
| | 3. Call doctor. |
| V. Preventive treatment. | Removal of eyeball. |
| VI. Prevention. | Treat air guns and powder guns alike. |

CASE NO. 41

Joshua S., aged sixty-two years, noticed that his sight was getting dim. His wife looked at his eyes and noticed that the place back of the right pupil seemed somewhat cloudy. The sight became dimmer and dimmer until in two years he could not see things out of the right eye at all and barely out of the left.

What do you think was the matter with the man?

DISCUSSION—CASE NO. 41

The old man had a cataract in each eye. That means the lens in each eye had become cloudy and would not let light through any longer. You have probably seen a gray, cloudy lens in a horse or dog. For some unknown reason the lenses of old people sometimes get that way and then the old people go blind.

There is no need of their going around blind because doctors can take out the cloudy lens and the light will get into the eye again.

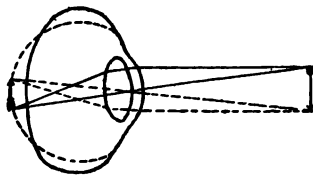
He had his cataracts removed at an eye hospital. When they were taken out, he could see the light but could not see any objects. That was because he had no lenses to focus the light on the retina, the black net of nerve endings in the back of the eye that connects the eye with the optic nerve which goes to the brain. By focusing the light, we mean making the rays of light strike the right spots on the retina.

Since he had no lenses, they gave him some by fitting a pair of glasses to his eyes. The glass parts of all glasses are lenses. Lenses are objects that will focus light.

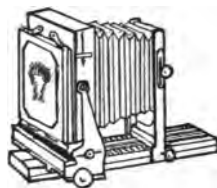
The eye focuses light about as a camera does. Rays of light come in straight lines from an object to the lens of the camera. Then the lens by changing the direction of the rays causes a small image of the object to be made on the plate or film. If the lens focuses well, the camera is in focus and the image is clear. If the lens focuses poorly, the camera is out of focus and the image is blurred.

Likewise in the eyes, a clear image is formed on the retina, if the lens focuses properly; and a blurred image, if the lens focuses improperly.

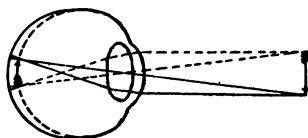
The lenses in some eyes will not focus properly unless they are helped out by an extra pair of lenses. That is why some people have to wear glasses.



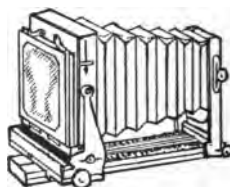
SHORT EYE



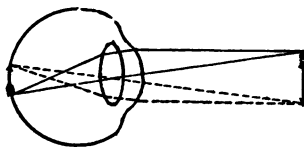
SHORT CAMERA



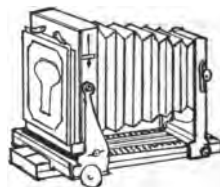
LONG EYE



LONG CAMERA



NORMAL EYE



CAMERA IN FOCUS



SUMMARY OF PRACTICAL POINTS

I. Diagnosis.	Cataract.
II. Symptoms.	1. Loss of vision. 2. Clouding of lens.
III. Cause.	Cloudy lens stops light.
IV. Treatment.	1. Removal of cataracts. 2. Focusing light on retina with glass lenses.
V. Prevention.	None.

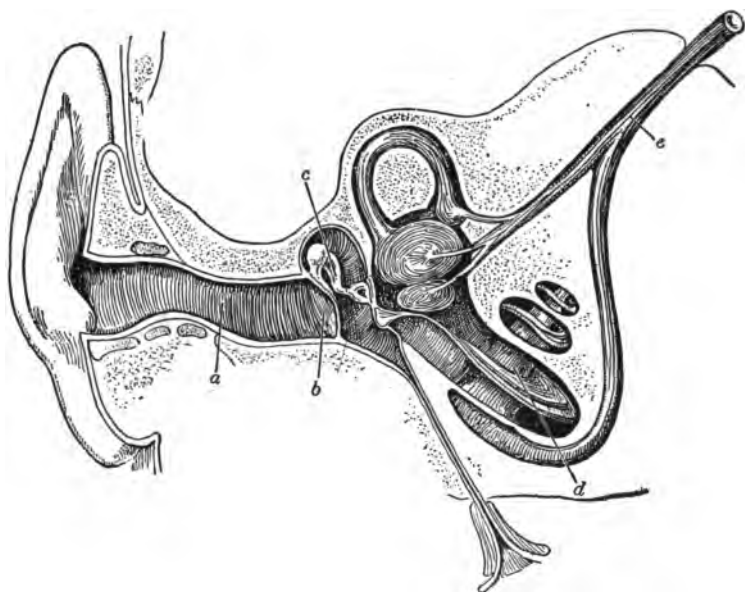
CASE NO. 42

Dorothy K., a little girl seven years old, was playing in the garden. Suddenly she heard something buzz around her left ear and felt it touch her ear. Then the buzzing in her ear became very much louder and there was a queer feeling in the ear.

What would you do?

DISCUSSION—CASE NO. 42

The little girl had an insect in her left ear. The head should be turned so that the right side is down and a few drops of lukewarm water should be poured into the ear to drown the insect.



a, the canal; *b*, the ear-drum; *c*, the ear bones; *d*, the inner ear; *e*, the nerve of hearing

A cut through the right ear (after Czermak)

The insect is in the canal leading from the outer ear to the ear-drum. As you may see in the illustration, there is a little canal about an inch long and a little bit larger than a slate pencil which goes from the hole in your ear to the ear drum. The insect was in this small place.

No harm will come, if the insect is drowned right away and,

if when drowned, it is left there until a doctor takes it out. If it is not drowned at once, it will probably sting the canal. If anybody pokes for it blindly after it is drowned, the canal or the ear-drum is apt to be injured.

These people waited for a doctor. Meanwhile the insect stung the child several times. The doctor drowned the insect the minute he arrived. Then the doctor looked into the canal with a head mirror, which is a device that reflects light into a dark hole like the canal. With this light, the doctor could see the insect and get hold of him with a little pair of forceps and pull him out.



As the head-mirror shines light into the ear or throat the doctor looks through the hole in the centre of the mirror

Many accidents occur to ears because people, without being able to see, poke in with hairpins and toothpicks, trying to get wax or foreign bodies out. That is a very poor plan. A hole is sometimes made right through the drum. If this hole is small so that the edges will come together, it will heal up but it often happens that the hole is so large that the

edges cannot get together. Then the drum will not heal up and the hearing will be permanently injured. Avoid these accidents by making it a rule never to put anything into the ear except water to drown an insect. Never use anything but a washcloth with which to clean the ears.

SUMMARY OF PRACTICAL POINTS

I. Diagnosis.	Insect in ear.
II. Symptoms.	Loud buzzing.
III. Cause.	Insect caught in canal of ear.
IV. Treatment.	Drown in water.
V. Preventive treatment.	Do not poke blindly into ear.
VI. Prevention.	None.

CASE NO. 43

Clarence H., aged five years, got a bean in his ear. His father attempted to get it out by pouring in some water.

What would you do?

DISCUSSION—CASE NO. 43

In the last case, we learned that no one but a doctor ought ever to put anything into an ear except water to drown an insect.

This bean was not an insect, therefore, no water should have been poured in. The water only made the bean swell and carried it back against the drum. The ear should have been let alone while waiting for a doctor.

When the family doctor came and saw how far back the bean was, he said at once that it would take a specialist to get the bean out. So, the child was taken to a specialist in a large city.

The specialist looked in with a special electric light and then with some of his special tools cut the capsule of the bean and took it out one half at a time without injuring the drum.

If the bean had been left in, bacteria would have collected around it the way they do around food in a tooth and would have attacked the canal of the ear or the ear-drum. The canal is a place that is dark, damp and warm. Darkness, dampness and warmth always favor the growth of germs. So, if germs are given a chance, they will attack the canal.

The dampness had been increased by pouring in water. If no water had been poured in, the family doctor could probably have pulled the bean out easily. It would have been much worse, if the father had poured in the water and had then started poking around in the canal without being able to see into it. Probably he would have wounded either the canal wall or the drum. In a child of this age the canal is only as large as a slate pencil and less than an inch long.

The canal wall and drum are both delicate things, and are easily injured.

A good many accidents occur in just that way, because things are put into children's ears. The way to prevent them is to put nothing in but water to drown an insect and not to let children have things to play with that are small enough to go into the mouth or the ear.

It is easy to make a large jagged opening in the delicate drum and poke through into the middle ear. The middle ear is a little chamber about the size of the end of your little finger. It lies just inside of the drum. It contains the three small ear bones: hammer, anvil, and stirrup. They conduct sound vibrations from the drum to the inner ear which lies still deeper toward the brain. Any one poking around blindly might tear one of the little bones out.

SUMMARY OF PRACTICAL POINTS

- | | |
|--------------------------|---|
| I. Diagnosis. | Father had made mistake. |
| II. Symptoms. | Bean was larger and was in farther. |
| III. Cause. | Water carried bean in and caused it to swell. |
| IV. Treatment. | Call a doctor. |
| V. Preventive treatment. | Put nothing in ear save water to drown an insect. |
| VI. Prevention. | Large playthings. |

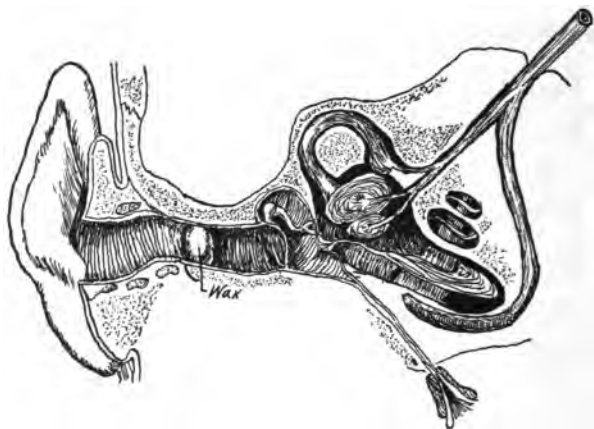
CASE NO. 44

Joshua D., a farmer aged fifty-two years, had been gradually losing his hearing for the past ten years. At that time he was so deaf that he could no longer hear a guitar which he used to play. His family doctor told him that the trouble was in the canals of the ears; that the inner parts were all right; and that the hearing would be restored in a few hours.

What do you think was the matter with the man?

DISCUSSION—CASE NO. 44

The doctor had looked into the ears with a head mirror and seen several deposits of old dried up wax. These deposits had stuffed up the ears so that no sound waves could get into them.



Wax blocking the canal of the ear.

Whenever anything makes a noise that you can hear, it vibrates and sends sound waves through the air to your ear. On the guitar which he used to play, one could see the strings vibrate as they gave off sounds. As the strings vibrated, they made the air vibrate, too. When the vibrations or waves in the air reached the ear-drum, they made it vibrate and then the brain interpreted the vibrations as sounds. Only such vibrations got to his brain as were strong enough to make the wax vibrate. The vibrations were then carried along by the wax to the ear-drum.

The doctor filled a syringe, made especially for the purpose with warm water and by squirting syringe-full after syringe-full into the canal, succeeded, after half an hour's work, in washing out the dried wax.

The old gentleman's hearing was so good that he could not stay in town that night. He had not been used to any sounds at all. So, the noise of a small city almost drove him crazy.

This condition of dried up wax is one that you ought not to try to prevent by digging into the ear to get wax out. The wax gets dried up in grown persons only. If they consult a doctor as soon as they notice any loss of hearing, they will not be bothered much. He ought never to have waited so long before seeing a doctor about his ears. It might have been some other trouble that could be cured when it was starting but could not be cured later, when it had gone on for a while.

There has to be wax in the canal to protect the lining of the canal and to keep it clean. The wax is made by little glands at the inner end of the canal and spreads out over the canal in a thin film. It catches any dust or dirt that comes in, and in that way protects the canal. The cells of the canal grow from the back end near the drum toward the outside opening as you may see in the illustration. As they grow out, they usually dump out any wax that is caked up with dust or dirt and you can wash it off with our hand or with a wash cloth when you are washing your face. If you try to dig the wax out, you are trying to take away part of the ear's natural protection, as well as taking a chance of wounding it.

SUMMARY OF PRACTICAL POINTS

- | | |
|--------------------------|------------------------------|
| I. Diagnosis. | Wax in ear. |
| II. Symptoms. | Deafness. |
| III. Cause. | Wax stopped sound waves. |
| IV. Treatment. | Syringe and water. |
| V. Preventive treatment. | Do not dig into ear for wax. |
| VI. Prevention. | None. |

CASE NO. 45

Henry H., aged twenty-five years, caught a cold in the head while crossing the Rocky Mountains in a tourist sleeping car. When he arrived at Los Angeles he could not hear with his right ear and had a queer sensation in the back of his throat on the right side and in the right ear as if the ear were plugged up. The ear throbbed and rang. He suffered agony with it.

What do you think was the matter?

DISCUSSION—CASE NO. 45

The young man's eustachian tube had been plugged up. That had happened in the following way.

As you have learned in a previous case, when you are having a cold there are a great many germs in the nose and throat that are fighting the cells there. Some of these germs had gotten from the throat into the tube and were attacking it. As the tube was attacked, it swelled and swelled shut.

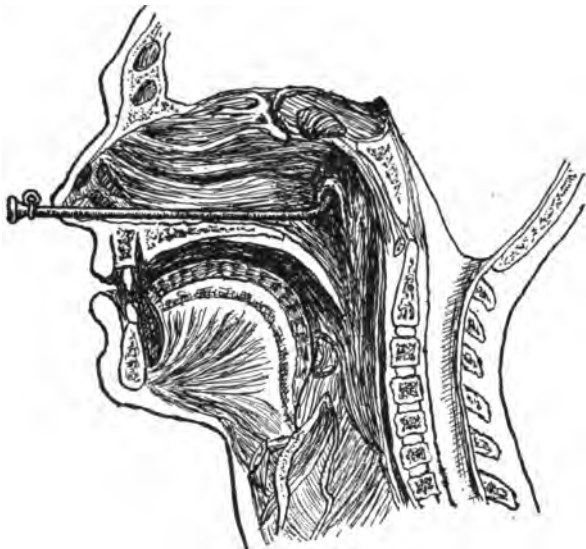
That was what gave him the plugged up feeling in the ear. He knew from something else that the tube was plugged up. If you hold your nose and blow hard as you swallow, you can hear the air rush up into your ears. He could hear the air rush into his left ear but not into his right ear.

A throat specialist was consulted. He passed a small, hollow silver tube through the nose into the opening of the eustachian tube. Then he joined a rubber syringe onto the free end of the silver tube and blew the eustachian tube open with blasts of air. The instant the tube opened up, Mr. H. was living in a new world. All of the ringing, and suffering, and stuffed up feeling were gone. In addition to giving him relief, the procedure had probably saved him from having the middle ear inflamed. When the eustachian tube became swelled shut, germs were caught in the middle ear and would probably have inflamed it, if they had had no way of getting out. For that reason plugged eustachian tubes should always be inflated.

While we are considering this procedure of blowing up the eustachian tubes, be sure to get this one thing straight. Do not blow up your tubes yourself by holding the nose and blowing when you have a cold.

If there are no germs in the tubes, that will blow them in and they may set up an inflammation. Blowing your nose too hard may do the same thing.

The way to prevent such inflammations altogether is to prevent colds. We will consider the prevention of colds elsewhere. He caught this cold because the sleeping car



From Bacon's Manual of Otology

Courtesy, Lea & Febiger, Publishers

Blowing open the eustachian tube and inflating the middle ear

was shut up tight and no fresh air came in. The result was that the air became germ laden and most of the people breathing it into their noses caught a cold. Any poorly ventilated place where a number of people gather together soon becomes a bacteria exchange. Every one breathes out germs from his own nose and throat and breathes them in from every one else's throat and nose. We should insist on

good ventilation of public places, such as cars, theatres, churches, and schools and we should avoid poorly ventilated ones as much as possible.

SUMMARY OF PRACTICAL POINTS

- | | |
|--------------------------|---|
| I. Diagnosis. | Inflammation of eustachian tube. |
| II. Symptoms. | 1. Those of cold in head.
2. Inability to hear.
3. Plugged sensation.
4. Throbbing and ringing.
5. Agony. |
| III. Cause. | 1. Germs attacking middle ear and eustachian tube. |
| IV. Treatment. | Inflation of eustachian tube. |
| V. Preventive treatment. | Do not inflate eustachian tube when you have a cold. |
| VI. Prevention. | Prevent colds by good ventilation. |

CASE NO. 46

George B., aged four years, had a cold. His mother gave him a dose of castor oil and put him to bed. His nose was stopped up and running. He had a cough and said his throat was sore and that his head hurt. He did not sleep at all and was hot and feverish. This continued for about a week.

What would you suspect might be the matter?

DISCUSSION—CASE NO. 46

Whenever a cold fails to get well promptly in a child, middle ear trouble should be suspected. When young children and babies have ear trouble in half of the cases they do not complain of pain in the ear. There may be no symptoms from the middle ear at all, yet it may be inflamed and full of pus.

The same germs that get into the nose and throat of a child and cause an inflammation or cold, are apt to get from the throat into the eustachian tubes which open into the throat. Then they go up the tubes into the middle ear and cause an



From Bacon's Manual of Otology

Courtesy, Lea & Febiger, Publishers

When the ear-drum is inflamed, instead of being gray, it is red and bulging

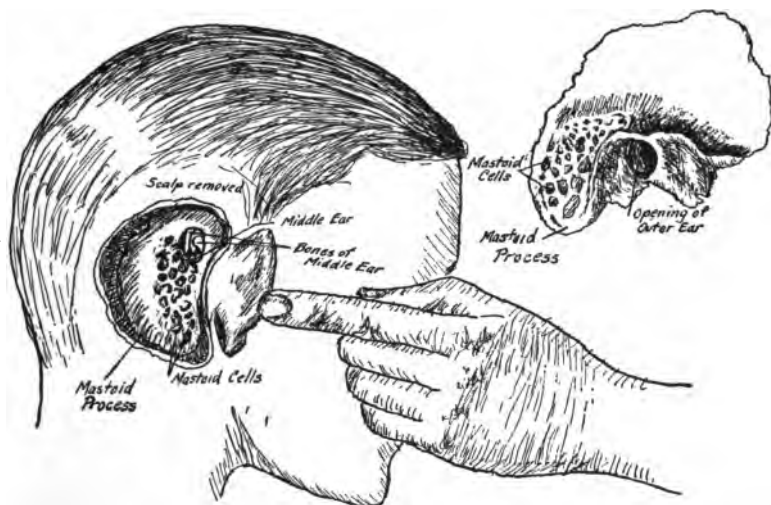
infection there at the same time. In grown people, that is much less apt to happen. The reason is because the eustachian tube in children is shorter and more open and lets the germs in easily.

Since the child is not apt to complain of the ear, the ear must be looked at by a doctor with a head mirror. If the

middle ear is inflamed, the gray ear-drum will be red or may be bulging with the pus behind it.

In this case, a doctor was called. He was in a hurry and said it was just a cold. He was not going to look at the ears but the mother insisted. He found the right ear-drum red and bulging. With a small knife he made a tiny opening in the drum and let several drops of pus out. A few drops of pus ran out every day for three days. In a week, the drum was healed up without a scar.

This case was allowed to go too far. It is dangerous to



The middle ear connects with the mastoid cells.

leave the pus and germs in the middle ear. The germs are apt to damage the middle ear bones or push on into the mastoid process or even to the brain where they may set up inflammation. The middle ear opens into the mastoid cells which are right next to the brain in a child as you may see in the illustration.

Those inflammations are very serious. They can be prevented, if the diseased middle ear is opened early. The only way to make sure that a child with a cold has not an inflamed middle ear is to have a doctor look at the drum. No child with a cold should be allowed to go more than three days without having the eardrums looked at. Following that rule will catch the cases of middle ear trouble in an early stage.

Middle ear disease may be prevented by preventing colds. We shall consider colds later.

SUMMARY OF PRACTICAL POINTS

- | | |
|--------------------------|--|
| I. Diagnosis. | Inflammation of the middle-ear. |
| II. Symptoms. | 1. None complained of. Only a cold lasting several days.
2. Examination showed red, bulging ear-drum. |
| III. Cause. | Bacteria. |
| IV. Treatment. | Small cut to let out pus and germs. |
| V. Preventive treatment. | Small cut often saves serious trouble. |
| VI. Prevention. | Prevent colds. |

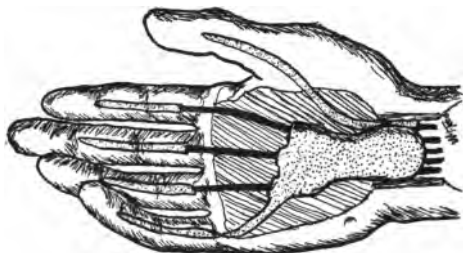
CASE NO. 47

George E., aged fifteen years, scraped the end of his thumb on a patch of cinders as he tried to catch a base-ball. The skin was raw and oozed small drops of blood in a large number of places. He immediately stuck it into his mouth and began to suck it. It stopped bleeding. In a little while he went on playing. That night it ached. Next morning the whole thumb was red, swollen, painful, and hot. He disregarded it and played ball again that day. At night the little finger began to ache as well as the thumb.

What do you think is the matter?

DISCUSSION—CASE NO. 47

He had an infection. Germs had gotten into the wound either from his mouth or later when it was exposed. Then they had invaded the thumb. From the thumb they had followed the tendon sheathes down into the palm and back again to the little finger. The tendon sheathes from the thumb connect with those of the little finger. That accounts for the germs getting into the little finger and not the other three.



The tendon sheathes of the thumb and little finger communicate in the palm

The germs multiplied and battled with the cells in the hand. They made it red, hot, swollen, and painful. The next morning the thumb, little finger, and palm were swollen to twice their normal size. He went to the hospital where the surgeons gave him ether and made slashes in the thumb, little finger, and palm. Half a tea cupful of pus ran out. It was a month before the hand healed up and then there were three large scars. Not every infected hand turns out as well. Sometimes they are fatal and sometimes a finger, or thumb, or the whole hand has to go.

He made several mistakes in running such a risk. When he first got the wound, instead of sucking it and getting in

germs from his mouth, he should have painted it with tincture of iodine and put a piece of sterile gauze over the wound. The gauze could have been held in place by a bandage or adhesive plaster. The iodine will kill most germs that get into wounds and the sterile dressing will keep them out.

The next mistake was in not going to a doctor as soon as the thumb began to get inflamed; that is, as soon as it began to hurt and get red, hot and swollen. If he had gone then, by using warm antiseptic baths on the hands, an operation could probably have been avoided. It is done frequently by all doctors.

The second mistake he made was to continue using the thumb when it hurt. He was just wounding the wounded tissues more and weakening them in their fight with the germs.

The infection should have been prevented altogether by tending to the thumb when it first got wounded and by not using it afterward until it had healed enough not to pain.

When the writer's class were asked what they thought was the matter, a good many of them said blood poisoning. When one says blood poisoning, one means that the germs had invaded the blood and were going all over the body. If he had had that, he would have been sick with headache and high fever. Blood poisoning starts from neglected wounds in exactly this way but in this case nature kept the germs in the hand and did not let them get into the blood.

SUMMARY OF PRACTICAL POINTS

- | | |
|--------------------------|--|
| I. Diagnosis. | Infection of hand. |
| II. Symptoms. | Those of inflammation; red-
ness, heat, swelling, pain. |
| III. Cause. | Battle going on between germs
and cells of body. |
| IV. Treatment. | Cut, to let out pus and germs. |
| V. Preventive treatment. | Proper care of small wounds.
1. Rest for wounded part.
2. Iodine, peroxide, or water.
3. Sterile dressing and band-
age. |
| VI. Prevention. | None. |

CASE NO. 48

Dorothy D., aged twenty years, a trained nurse, got her fingers into a silver-nitrate solution while trying to burn off a wart. The finger nails, fingers, and wart began to turn black and sting.

What would you do?

DISCUSSION—CASE NO. 48

Silver nitrate was eating into the skin. She should have put some salt and water on the fingers right away. The salt forms silver chloride when joined to the silver nitrate. Silver chloride is a white substance that does not dissolve in water and does not eat into the skin as the silver nitrate was doing.

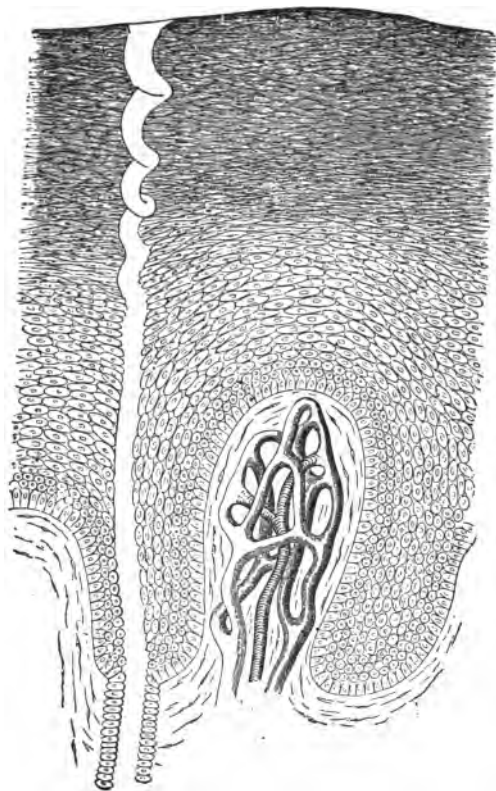
She ought also to wash the hands thoroughly with soap and water to get the silver chloride out. Whenever silver chloride is left in the hand, the skin and nails will be turned black by the sunlight.

She did neither for a few minutes and had very black finger tips for a couple of weeks. Fortunately, the silver nitrate had not burned through the skin and as the skin grew out and was shed off, the blackened cells were shed off.

The skin grows out all the time from a developing layer which is a few layers beneath the surface of the skin. In this developing layer the cells keep dividing into two all the time. Two cells become four; four become eight; and so on. In that way, there is always a supply of new cells to pass out to the surface and be shed off. You can see the cells being shed in flakes when you have dandruff, chapped hands, or sunburn. Usually the cells come off singly and are so small that you do not see them as they are lost.

She did not succeed in getting her wart burned off with silver nitrate. It had to be cut off after all. She had a little cocaine injected into the wart and the cutting did not hurt a bit.

A wart is an outgrowth of cells from the developing layer of the skin. Why a particular group of cells in this layer



This is a section of skin magnified about a thousand times. The cells at the top have very little life and are crushed together so closely that you cannot tell one from another. The second layer where you can tell the different cells apart easily is the developing layer. The cells of the skin grow out from the developing cells in this layer. As they get farther and farther away from the blood vessels which you see in the picture they become more and more dead objects, until at the surface when they drop off they are dry, lifeless scales.

should grow out no one knows. In being a new growth of cells a wart is like a cancer but it does not burrow, spread, destroy tissues, and kill the way a cancer does.

SUMMARY OF PRACTICAL POINTS

- | | |
|----------------|----------------------------------|
| I. Diagnosis. | 1. Silver nitrate burn. |
| | 2. Warts. |
| II. Symptoms. | 1. Black color. |
| | 2. Pain. |
| III. Cause. | Silver nitrate eating into skin. |
| IV. Treatment. | Silver nitrate— |
| | Salt and soap. |
| | Warts— |
| | Cocaine and knife. |

CASE NO. 49

James K., aged twenty-seven years, had had a dull aching pain along the outer edge of both of his great toe nails, at times, for five years. Of late they had been causing him pain almost every time he took a step. The nails of all of his toes were thickened.

What do you think is the matter?

DISCUSSION—CASE NO. 49

He had what is commonly called ingrowing toe nails. The condition is really an overgrowth of the skin next to the nail. It is caused by shoes with pointed toes and by not keeping the nails clean and trimmed.

Once the ingrowing nail has been fully acquired, it requires a minor operation to get rid of it. A little cocaine is injected along the edge of the nail and a piece shaped like a piece of cake is cut out of the toe, taking along the edge of the nail and the overgrown part. He had this done one at a time, and got rid of them but did not get rid of the thick nails.

Oftentimes an operation may be avoided, if one trims around the nail just as soon as it begins to hurt.

The ingrowing nails and thick nails can be prevented by taking proper care of the nails. There ought never to be any dirt under the nails. If one takes a bath every day, and, with a blunt piece of wood, gets any dirt out that has been gathered, usually, the flesh will grow up so close that dirt cannot get under the nails. Trimming the nails twice a week with nail-scissors is enough for most people. It pays to keep your nails in good condition. To do that, you must start young and never let them get bad.

We shall hear more about shoes with pointed toes later. No one ought ever to wear them, especially children.

SUMMARY OF PRACTICAL POINTS

- | | |
|---------------|------------------------|
| I. Diagnosis. | Ingrowing toenails. |
| II. Symptoms. | 1. Pain. |
| | 2. Overgrowth of skin. |

- III. Cause. Caused by pointed toes of shoes.
- IV. Treatment. Removal by operation.
- V. Preventive treatment. Care of nails.
- VI. Prevention. 1. Shoes with broad toes.
 2. Proper care of nails.

CASE NO. 50

Benjamin E., aged ten months, had a cold. He sucked his thumb most of the time. The thumb soon had a sore around the nail. The thumb itched and he rubbed it all over his body.

What do you think is the matter with the baby?

DISCUSSION—CASE NO. 50

The baby had a run-around or infection around the nail. He had sucked germs from his mouth into the skin. The nail is almost always lost unless the run-around is opened and treated with an antiseptic dressing right at the start.

His thumb was allowed to take care of itself for two days more when a crop of about twenty boils appeared in various parts of his body where he had been rubbing the bacteria from his thumb into the skin. A boil is a collection of germs and white cells that have been fighting the germs.

The baby was then taken to the children's hospital where two boils and the thumb were opened with a knife. That gave the pus and bacteria a chance to drain out. Dressings wet with hot iodine water were put on. The nail was lost. Another grew out in its place in about a month but was not as perfect as the original.

Most of the boils were not ripe. So, a vaccine against boils was given. Only two more boils became ripe. In a week, they had all disappeared. Boils are often cured by vaccines. Some people have two or three crops of boils every year. If such a person takes a vaccine against boils, he can usually put a stop to them.

This entire infection ought to have been prevented. The baby's sleeves should have been pinned to its dress for a few days. Then it would have lost the habit of sucking its thumb and the pins could have been abandoned. Babies and young children form habits easily.

SUMMARY OF PRACTICAL POINTS

- | | |
|----------------|-----------------------------------|
| I. Diagnosis. | 1. Run-around. |
| | 2. Boils. |
| II. Symptoms. | Signs of inflammation about nail. |
| III. Cause. | Germs attacking skin. |
| IV. Treatment. | Run-around— |
| | 1. Opening. |
| | 2. Antiseptic dressing. |
| | Boils— |
| | 1. Opening. |
| | 2. Vaccine. |
| V. Prevention. | 1. Pin sleeves to sides. |
| | 2. Do not suck fingers. |

CASE NO. 51

Willie S., aged ten years, while watching the display of fireworks on the evening of the fourth of July picked up numerous firecrackers, Roman-candles, and pieces of powder that fell out of skyrockets, flower pots, and pin-wheels. He collected two pant pockets and two coat pockets full and started up the street. Suddenly, little Willie's treasures started to go off and little Willie started to run. As his clothes broke into a blaze he let out a yell.

What would you do?

DISCUSSION—CASE NO. 51

Hiram N., a grown man, dashed across the street, grabbed him, threw him down, and pulled his coat and pants off. That was the correct thing to do. If he had been allowed to run, he would have been burned to a crisp. The wind from running would have fanned the flames and burned him up.

As it was, he had a large burn on the back and the legs pained and stung. They carried him to a drug store where carron oil was put on the burns. That is about as soothing as anything that can be used for a burn.

He lay in bed with a carron-oil dressing on the wound for about two weeks. The burn would not heal. More than a square foot of skin was gone. So, the doctor decided that he would have to do some skin grafting. Several schoolmates were asked if they would give up some patches of skin for him. Twelve boys consented. Willie was given ether and the wound was freshened up by scraping it with a knife. Then with a safety razor blade the doctor skinned off a strip of skin from the leg of each boy. The strip was so thin that the growing layer of the skin was not touched and no scar was left. Every boy said the pain did not amount to anything, but it showed a lot of pluck and courage in them to go and let a doctor take skin from them for the sake of one of their fellows. As each one of these strips or grafts was taken, it was laid on the wound. The grafts took and in two weeks the wound was all healed over but he always had large ghastly scars.

The proper thing to do in case another person catches on fire is to do just what was done in this case. Seize the person and throw him to the ground or the floor. Then, cover the person with a rug or blanket and smother out the flames. If

you allow a person to stand when his clothes are on fire, the flames are apt to get into his face where they may cause a hideous scar or where he may breathe them in with a fatal result.

If your clothes catch fire, take the burning garment off, if you can. If you cannot, smother the fire out by lying down on it or covering up with a rug or blanket.

SUMMARY OF PRACTICAL POINTS

(See end of case 52)

CASE NO. 52

When several doctors were talking over the case of Willie S., one of them said that the children had been made to undergo an unnecessary hardship. He said that the skin grafts should have been secured from a body that had just died.

Would you permit skin grafts from a dead body to be planted on you?

DISCUSSION—CASE NO. 52

The doctor was right. Such grafts grow perfectly well. The cells of the skin do not die for several hours and are just as good for grafts as any.

There used to be a great many fourth of July accidents. Some still occur. It is known that more people have been killed celebrating our liberty on the fourth of July than there were killed in the war of Revolution winning it. These accidents have been largely prevented. Many states and cities do not permit explosives much more powerful than ordinary fire crackers to be sold by dealers and used by the public. The boy himself could have prevented the accident by not fooling with explosives and could have kept from getting badly burned by lying down and pulling off his clothes when they started to burn.

Sometimes the burning clothes are so hot that the fire has to be smothered out. The way to do that is to throw the person down and wrap the person up tight with a rug or blanket or overcoat so that no air can reach the flames. In doing that, one must always be careful to wrap from the head toward the feet so that the flames will not be forced toward the head and burn the face and hair or be breathed into the lungs.

SUMMARY OF PRACTICAL POINTS

- | | |
|----------------|--|
| I. Diagnosis. | Burn accident. |
| II. Treatment. | 1. Stop victim. |
| | 2. Smother flames or remove burning clothes. |

II. Treatment—*cont.*

3. Do not get flames into nostrils.
4. Apply lard, carron oil or picric acid to burn.
5. Skin grafting.
 - a. From living people.
 - b. From dead bodies.

III. Prevention.

1. Sane Fourth of July.
2. Do not play with explosives.

CASE NO. 53

Georgiano F., aged twenty years, a Greek servant, who had just come to America, secured a very good position as valet and chauffeur for Mr. Lawrence J., aged twenty-nine years. About three days in the week Georgiano smelled so badly that Mr. Lawrence J. could not stand it to have him around. So, Georgiano had to be discharged, although it was cold and in the middle of winter. Mr. Lawrence J. had a burning and itching of the lower legs every evening. The skin came off the legs in scales like dandruff. The skin looked as if it were chapped. His hair was brittle and coarse. A great deal of dandruff came from his scalp.

What do you think was the matter with the servant?

DISCUSSION—CASE NO. 53

As one little girl in the writer's class said: "The servant was not refined. He did not take a bath every day and put on clean clothes." That was exactly what cost him his job.

The master was apparently making a mistake in the other direction. He liked baths. Upon getting up, he always took a shower bath the first thing, and then in the afternoon he usually went to the swimming pool at the gymnasium. Before going to bed, he always took a shower to make him sleep well.

You will note that it says he was apparently taking too many baths. He got around the chapped shins and scalp without stopping any of the baths. The reason the shins were chapped was because he was wearing underwear that came to his knees only. When he went outside, the shins of his legs were usually warm and moist and the wind blew above his shoe tops upon the skin. The cold air irritated the skin until it scaled off. The same thing happened to the scalp. The reason the hair was brittle and coarse was because he kept all of the oil washed out of it. Attached to the root of every hair there is a gland that secretes oil. He wore underwear that came to the ankle. While in the water he wore a rubber cap. The scaling and coarse hair were soon a thing of the past. Once every ten days is often enough to wash the hair.

The reason the servant did not keep clean was because he could not smell himself. Enough excretions from sweat glands, dirt, bacteria and other glands accumulate on the skin in twenty-four hours so that it pays to wash them off. The germs, from the water in a bath tub after a bath, have

been counted. There are a good many thousand in a teaspoonful. For that reason a shower is a better kind of bath than a bath tub. The water runs away as soon as it gets germs and dirt into it and germs from other parts of the body are not rubbed into the face or hands. After a bath, one ought always to use a clean towel and wipe the face first to avoid rubbing germs from other parts of the body into the face.

In addition to getting off the dirt, a bath tones up the nervous system. Scattered through the skin there are millions of nerve endings. All of these are affected by a bath as any one can tell who is accustomed to taking one every morning. It makes you feel strong and vigorous and like working. It gives you a warm, comfortable glow that nothing else does.

When Mr. J. asked Georgiano why he did not take a bath every day, he said he was afraid of catching cold. Of course, one will not, if one dries oneself thoroughly afterward and does not wet the hair every time. He thought it would weaken him. You hear people say of the rough crowd that hangs around the streets and seldom takes a bath, "Oh! They are tough. They can stand anything!"

That is not right. The tough crowd of street bums are a very short-lived lot. Getting used to dirt does not strengthen them. It weakens them. They catch different diseases easily and succumb easily.

SUMMARY OF PRACTICAL POINTS

I. Diagnosis.

Servant—Too few baths.

Master—Irritation of scalp and
irritation of skin of legs.

II. Symptoms.	Servant.
	Bad odor.
	Master.
	Scaling off of skin and scalp.
III. Cause.	Bad odor—Germs, dirt, and excretions from glands of skin not washed off.
	Scaling of scalp—Wind and chapped shins.
IV. Treatment.	Scalp—Rubber cap.
	Shins—Long underwear.
V. Prevention.	Keeping clean prevents diseases of all sorts.

CASE NO. 54

James D., aged twenty years, went to see his friend who was laid up with a sore foot, following an axe cut. It was rather dark as it was evening. A glass was standing on a table near the bed. He filled the glass with water and took a drink. Immediately he felt severe burning and pain in his chest and in his abdomen. In a minute he was bent double with the pains.

What do you think is the matter and what would you do?

DISCUSSION—CASE NO. 54

James D. had swallowed some poison. The friend had had some corrosive sublimate solution in the glass.

He had a bottle of corrosive sublimate tablets from which he had been making up the solution. He did not know what to do so he telephoned for a doctor who told him to look on the bottle and see what to do while he was coming.

It said to give milk, egg, meat or cheese as an antidote, and then to give enough mustard water to cause vomiting. Mustard water is made by adding one teaspoonful of mustard to a glass of water.

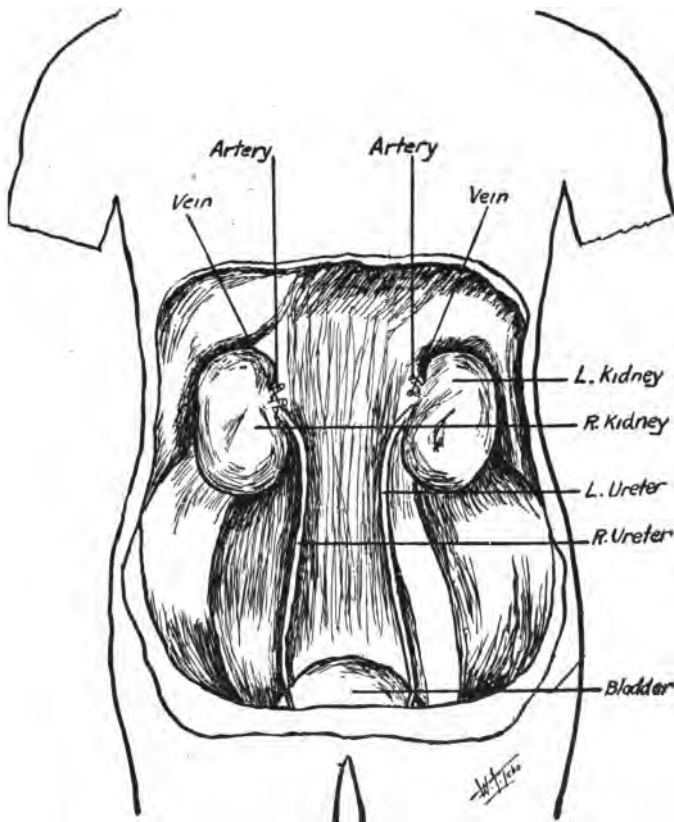
He gave the man a glass of milk but did not have any mustard. So, he put a handful of tea leaves into a pitcher of warm water and gave it to him glass after glass. Meanwhile the victim had become very pale and broke out into a cold sweat and complained of pain in his back. After taking ten glasses of the tea water, he had not vomited. So, his friend reached his fingers down the sufferer's throat. That made him vomit and he felt a little better.

He did the right thing in giving the water glass after glass. The thing is to make a person vomit the poison up. If you ever have such an accident to deal with, make the victim vomit by using water, fingers, or mustard and water. The tea leaves were a good thing. They neutralize many drug poisons.

When the doctor arrived, he washed the stomach out again with a stomach pump, gave the man some more milk and had him put to bed.

For a week he lay in bed very sick with intense pain in both sides of his back over his kidneys which the corrosive sublimate had wounded. Instead of passing the normal

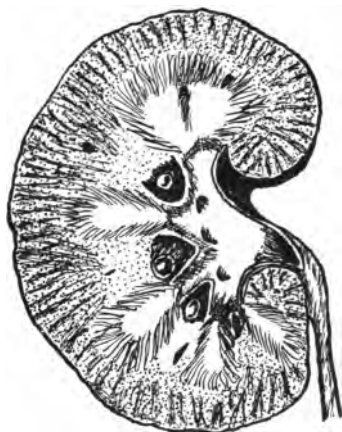
amount of urine which is three pints, he passed only about half a pint. The urine was bloody and contained many little clots of blood.



The kidneys eliminate the urine from the blood. The urine travels down the ureters to the bladder.

The kidneys normally form the urine by taking waste matter out of the blood. In this case corrosive sublimate had been absorbed into the blood from the stomach and the

kidneys had been wounded in trying to take the corrosive sublimate out. His kidneys were so badly damaged by the corrosive sublimate that they could no longer form the urine. The corrosive sublimate had made thousands of small wounds all over the kidneys which bled and made the urine bloody. As these wounds healed up, the kidneys became able to work more and more and the urine became less and less bloody and greater in amount.



Normal



Inflamed

A section through a normal kidney and a section through an inflamed kidney. Note the patches that have been destroyed, the dark areas where blood has collected, and the light areas where pus is smeared out in the inflamed kidney.

At the end of a week, he began to pass more urine with less blood in it and began to have less pain over the kidneys. By the end of the month, he was passing three pints of urine without any blood in it and was almost all well.

Most cases of corrosive sublimate poisoning do not turn out this way. They are usually fatal. The fact that he got

only a little corrosive sublimate from the glass and that his friend acted so quickly was all that saved him. The way to prevent such poisoning cases is to take certain precautions with poisons. Solutions of any poison should never be left standing around unlabeled and open. They should be kept in a bottle that you can distinguish in the dark. The best poison bottle is one shaped like a triangle and colored blue. It has a skull and cross-bones painted on it with phosphorous. They shine and can be seen in the dark. Poisonous substances should never be put into ordinary glasses and bottles. They should be kept out of the reach of children.

No one but a doctor should use corrosive sublimate because it is so poisonous. The household antiseptics should be peroxide of hydrogen and water.

You can help your kidneys to throw off waste matter by drinking plenty of water, at least three pints of water every day. Drink whenever you are thirsty. As far as we know, it makes no difference whether you drink water with your meals or not.

SUMMARY OF PRACTICAL POINTS

- | | |
|----------------|---|
| I. Diagnosis. | Corrosive sublimate poisoning. |
| II. Symptoms. | Pain in chest and abdomen. |
| III. Cause. | Poison attacking œsophagus, stomach, and kidneys. |
| IV. Treatment. | 1. Give milk, egg, or meat.
2. Produce vomiting. |
| V. Prevention. | 1. Avoid corrosive sublimate.
2. Poison bottles. |

CASE NO. 55

When Mabel T. was fifteen years old she was bright; had a clear complexion; and was strong and energetic. At school she was doing very good work. This was in marked contrast to her condition a year before.

When fourteen years old she was dull and backward at school. She was only in the sixth grade and had trouble in all of her studies. She was not at all good looking. Her complexion was a muddy, yellowish color. Her breath was bad and her eyes were bleary instead of being bright and clear. She was always complaining about being out-of-sorts and looked as if she were most of the time. She did not have enough energy to run and play hard or to study hard while she was in school.

What do you think was the trouble with the girl?

DISCUSSION—CASE NO. 55

The trouble with Mabel T. was constipation. Her dullness, backwardness, poor complexion, bad breath, cloudy eyes, and general feeling of being out-of-sorts, all came from this common cause.

There are three reasons why she was constipated.

She had no regular habit of going to the toilet to allow her bowels to move. Every one should have a definite time every day. Most people find after breakfast is the best time. If one gets into the habit of going regularly, the bowels will get into the habit of moving at that time and will remind one. Any one who has not a regular time and a regular habit should form one. At first, it may not be successful but, if one keeps going at the same time every day for a month, it will be.

The second reason was because she did not take exercise every day. When one exercises, one works the abdominal muscles up and down. That massages the intestines underneath and helps them to move their contents along.

The third reason was because she did not eat things that keep people from getting constipated: such as, fruits of all kinds, oranges, apples, prunes, figs, bananas, grape fruit; and she did not eat vegetables, such as lettuce, tomatoes, asparagus, and spinach.

She was taken to the family doctor, who insisted that she go to the toilet regularly by the clock at eight o'clock every morning, that she get out of doors every afternoon from three-thirty until five-thirty, and that she eat the things mentioned above.

In a year, she was a very much changed girl. She was

bright and had a clear complexion, and felt strong and energetic, and was doing much better at school.

SUMMARY OF PRACTICAL POINTS

- | | |
|-------------------------------|-------------------|
| I. Diagnosis. | Constipation. |
| II. Prevention and treatment. | 1. Regular habit. |
| | 2. Exercise. |
| | 3. Diet. |

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GLOSSARY

KEY TO PRONUNCIATION

a	as in	mâte, senâte, făt, ärm, ăll, ăsk, whăt, câre.			
e	"	mête, évent, mêt, hêr, thêre, obey.			
ee	"	sheet.			
i	"	lice, idea, ít, sîr, machine.			
o	"	höld, ôbey, nôť, mọve, wọlf, sọn, hỏrse, wỏrk.			
oo	"	food, fỏot.			
u	"	ũse, ũnite, ũp, fũr, rule, pull.			
y	"	fly, mỷself, babỷ, mỷrrh.			
au	"	author.			
aw	"	saw.	ew	as in	new.
oy	"	boy.	ou	"	out.
c (unmarked)	as in	call;	ç	"	mice.
ch (unmarked)	"	child;	çh	"	chaise;
g (unmarked)	"	go;	g(=j)	"	cage.
ng	as in	ring.	ŋ(=ng)	"	ink.
s(=z)	"	is.	si(=sh)	"	tension;
th (unmarked)	as in	thin;	th	"	then.
x (unmarked)	"	vex;	x(=gz)	"	exact.
			oi	as in	boil.
			ow	"	cow.
			ci (=sh)	"	gracious.
			eh(=k)	"	school.
			ph(=f)	as in	phantom.
			ş(=zh)	"	vision.
			ti(=sh)	"	motion.

ab' scëss (ab'-ses)
 ăd' ền oid (ad'-en-oid)
 ăm oe' bạ (am-e'-bah)
 ăn ti sêp' tic (an-ti-sep'-tik)
 brôn'chỉ' (brong-ki)
 brôn'chỉ tis (brong-ki'-tis)
 brôn'chũs (brong-kus)
 cầ' lor (ka'-lor)
 căt' ăr ăct (kat'-ar-akt)
 cầ' i a (sil'-e-ah)
 cộn' đũ ít (kon'-do-it)
 cộn' jũnc ti' vắ (kon-junk-ti'-val)
 cớ' nê a (kor'-ne-ah)
 đỉ' ă phragm (đi'-ah-fram)
 diph thê' ri ă (dip-thê'-re-ah)

dỏ' lỏr
 đũ' rạ (du'-rah)
 ẻm' ẻt ẻne
 eu stầ' chỉ ăn (u-sta'-ke-an)
 fẻ' mủr
 frắc' tũre (frak'-tũr)
 hủ' mẻr ửs
 hy' đrỏ gẻn (hi'-dro-jen)
 lắ' ynx (lar'-inks)
 lẻns' (lenz)
 mắs' toid
 mẻ' đũll' ă (me-dul'-ah)
 mỉ' crỏ scỏpe (mỉ'-kro-skỏp)
 mỏlly' cỏddle
 ỏp' tic (op'-tik)

pāl' āte (pal'-at)
pēr ǝx' ide (per-oks-id)
pneu mō' ni ǝ (nu-mo'-ne-ah)
py ǝrr hoe' a (pi-or-e-ah)
rān' ū lǝ (ran'-u-lah)
rēt' in ǝ (ret'-in-ah)
rū' bōr
slough (sluff)
sūb' lim āte

tēn' don
tōn' sīl
tour' nī quet (toor'-nik-et)
trā' chē ǝ (tra'-ke-ah)
tū' mōr
tūr' bīn ate
ūv' ū la (uv-u-lah)
vār' ĩc ǝse (var'-ik-os)

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